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ComputerWeekly

Thursday, November 24, 1983

PT7 cuts costs
FERRANTI
Computer Systems

Zygal quits as DEC distributor

by John Kavanagh

ONE of Digital Equipment's four UK authorised terminal distributors has pulled out of the company's "official" scheme. Zygal Dynamics says the DEC products are hard to sell outside the DEC computer market – and it has taken on cheaper terminals from competitors.

Zygal's move comes less than a year after Avacus Electronics left the authorised distributor scheme and only a fortnight after Argat ended its authorised computer distributor contract with DEC.

But the three remaining terminal firms say DEC business is booming and that DEC's new terminals are set to take over the market.

"We just weren't selling very many," said Zygal chairman Con Driscoll. "We had no experience of selling terminals to DEC users and were making more money selling in our traditional printer markets. DEC wants the distributors to sell outside its computer user base but over 90% of DEC terminals are used by its own computer customers. The VT100 terminal is very difficult to sell outside the DEC base, especially against products from firms like Televideo and C Itoh."

Zygal has taken on the Televideo products.

Driscoll said the parting was amicable and DEC had taken back all remaining stock, though it was not obliged to.

But other DEC distributors reported big business. "DEC terminals have not been wholly suited to the general market because they have options specifically aimed at DEC computer users, which means they are expensive," said Jim White, terminals division manager at Rapid Recall.

"But the new BT200 family will knock Televideo and C Itoh right out. It's a more general product – and users like the support a big company like DEC can offer."

Pat Frizzonie, managing director at Bytech, agreed. Bytech, like Zygal, was new to the DEC market when appointed early in 1982.

"Sales have got better and better," Frizzonie said. "The VT200 comes right into line with other standard products. It will make an amazing impact on the overall market."

Graham Hilton, head of the terminal distribution scheme at DEC, said the authorised firms were doing twice as much business as at this time last year. He felt the BT100 was "not very attractive" outside the DEC computer market but added that the BT200 range would give the company the edge.

Hilton said DEC would probably look for another distributor but was under no pressure to do so.

DRISCOLL . . . "Parting was amicable."

Government stall irritates leaders

by John Kavanagh

COMPUTING industry leaders have lashed the government for stalling over giving "minute" amounts to schemes which would boost the UK information technology business.

The Department of Trade and Industry has asked for further discussion over a £16,800 grant for a project aimed at bringing UK university software to market through services firms.

And there is still no decision on further funding for the ExportIT scheme, which has been run on a shoestring for the last year while the government ponders over a grant of about £150,000. In its first year, when it had £250,000 of backing, ExportIT brought UK firms export contacts representing business totalling £10 million.

"A lot of government people have been sitting on the fence," said Donald Moore, who has been acting as director of ExportIT on a voluntary basis for the last two years. "A full-time chairman was appointed in May and he's been hanging about since then waiting for a decision.

"We were granted £250,000 at the end of 1981 – and we've kept going on that through 1982 and 1983, plus income from overseas missions and exhibitions.

"The amounts we're talking about are minute. We could become self-financing on a lot less that £200,000."

Fairbairn agreed. "The government has been reviewing ExportIT funding since December and it's not prepared to make a decision," he said.

It was Fairbairn who last month wrote to the Department of Trade and Industry with final proposals for a £35,000 survey of university software. Over half the funding has already been promised by the NCC and the British Technology Group.

But this week the Department wrote back seeking further discussion of certain points which, says the NCC, had already been clarified. Fairbairn had discussed the plan with Alistair McDonald, head of the department's information technology division, before sending the proposals. Fairbairn said McDonald was "happy" with the idea.

When appealing for the £16,800 grant Fairbairn wrote: "I believe there is a very important task to be done and an opportunity will be missed if an activity is not now mounted to develop links between universities and industry."

This week the man behind the initiative at the NCC, Eric Johnson, said the Department's reply was "a let-down".

"The Department says the survey should also cover the mechanism for distributing the software," Johnson said. "But we'd made it clear we would look at this and consider possibilities such as setting up a software company."

Also involved in the project is the University Directors of Industry Liaison group. A source close to the group, who preferred not to be named, pointed to the Computer Weekly story last week about the UK computer industry and users blaming each other for the slow take-up of information technology by UK companies.

"That says it all," he said. "Everyone prevaricates and meanwhile US firms come steaming in."

Leader Comment – page 15

FAIRBAIRN . . . "Opportunity will be missed."

Asian scientist accuses lab of racism

by Donald Kennett

THE National Engineering Laboratory has been accused of racial discrimination by one of its senior computer services staff.

Kuldip Bhasin joined the laboratory's computer department in 1967 and by 1976 he was a principal scientific officer (PSO) responsible for the 11-man systems and applications section.

His complaint is that he was then transferred in May 1982 to a position under someone of the same rank in the plastics engineering department, where he was unable to use his knowledge and experience.

He believes he was discriminated against because he is Asian. He has applied for a hearing by an industrial tribunal.

The crunch came in June, when he was told there was no longer a job for him back in the computer services department – and he feels he can trace his maltreatment back to 1980.

NEL director Dr Donald Bell said: "We have treated him like any other PSO, with no reference to his ethnic background, and I'm quite puzzled why he's taken this action.

"He's in his early forties and was made a PSO early on in his career, which means he has the potential to rise quite high. He's a bright guy.

"We said 'You've got this background in computing, we'd like you to apply it to a new area in materials design'.

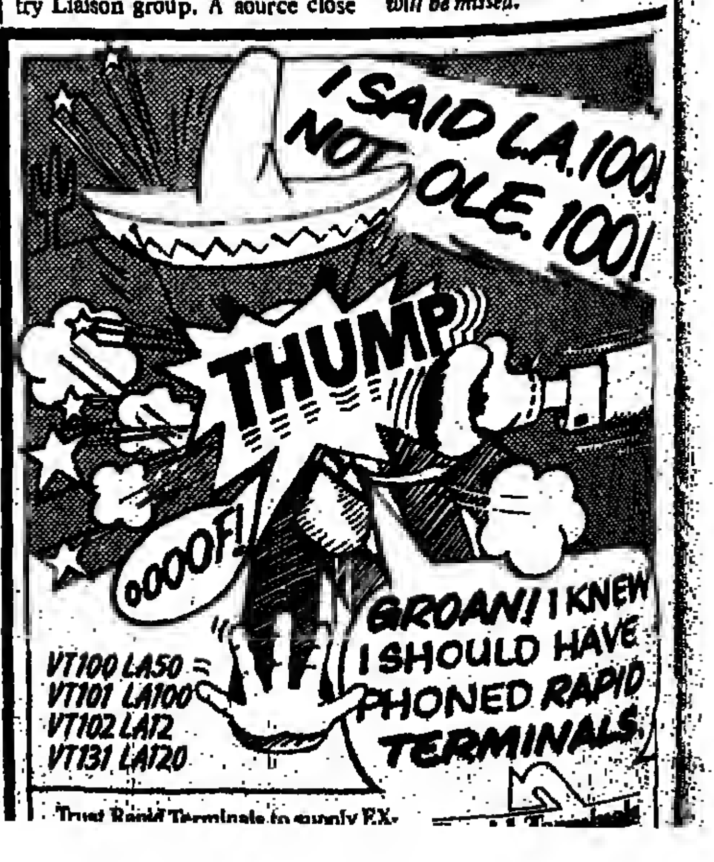
"We gave him an ill-defined problem, that's acknowledged. But then PSOs often are. He made such a song and dance about it that we took him away from it.

"Now we want to see what kind of training is needed to let him become a full computer-aided engineering sort of person rather than just computer services. Computer services is the sort of job you give someone for a while before moving him on to something more difficult."

There was no question of Bhasin having ruined his career prospects, Bell said.

Bhasin is consulting his union, the Institute of Professional Civil Servants, in preparation for the hearing, which is likely to be early next year.

IPCS assistant general secretary Tony Cooper declined to give his view of the case. "All I can say," he said, "is that, as in any case of this kind, we see what we can do – the best we can – for somebody."



Return-to-work talks start in BT dispute

by Nuala Moran

TALKS began last week between British Telecom and the engineers' union, the POEU, aimed at getting about 1,00 engineers involved in industrial action against the government's plans to privatise BT, back to work.

The POEU also decided not to ... international exchanges in London six weeks ago. It includes the 57 engineers who were threatened with dismissal for refusing to work normally after signing an undertaking to do so.

Concentrating action on the international exchanges could backfire on the union. The POEU has repeatedly said it did not want to

IBM amends NAS and NatSemi writs

by Keith Holder

IBM has reaffirmed its intention to sue National Semiconductor and National Advanced Systems for damages, which it estimates could cost the defendants between $750 million and $2.5 billion, over the alleged theft of IBM technology secrets.

This was part of the statement

"We feel that the allegations are totally unfounded and if the case comes to court no damages will be awarded."

Although IBM has changed its charge, this has no real effect.

The idea behind the move, said Clements, "was to narrow the field covered by the charges so that we could discuss specifics"

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BCS to back private Bill on copyright

by George Black

A NEW move to get software covered by copyright legislation is to be launched by the British Computer Society next week. The idea is to bring in a Private Member's Bill that would remove the doubt on the subject through a simple amendment to the 1956 Copyright Act.

Industry leaders see no prospect of the government fulfilling within the next three years its pledge of a general reform of copyright law, and they say that the confusion surrounding the ownership of programs cannot be allowed to go on that long. The government's Green Paper on copyright was published nearly 2½ years ago.

Chairman of the Computing Services Association legal group Ranald Robertson, said the proposal of a private Bill would have his association's support.

Common Market plans to promote an international law have stumbled on member States' objections, leaving individual nations to put their own houses in order.

The CSA is keen to promote any initiative which strengthens authors' rights, but is arguing against a central register of copyrights on the ground that it would help to alert competitors to programming developments.

The significance of the British moves has been highlighted by a case in the US in which a top vendor has been found guilty of "wilful and malicious misappropriation" of software.

McCormack and Dodge was ordered by a court at Bellingham, Washington State, to pay damages of $2.3 million, plus legal costs of over $300,000, to ABC Management Systems Group for illegally selling ABC's financial spreadsheet and report writer overseas.

Now ABC is considering whether it also has a case against RTZ Computing Services, which sells the McCormack accounting suite incorporating the module in this country.

Vernon Ruskin, president of ABC, which licensed McCormack to sell the Fast subsystem embedded in its GL+ suite in the US only, said RTZ had been warned of the implications of the dispute, but had gone on distributing the code.

But McCormack's European manager, Charles Hogan, said RTZ was wholly protected and the obligation was all their own.

After the case Ruskin commented: "The issue was whether you can take a program and change it and claim that the original author has lost his rights. The court has said no and this is a victory for every software developer."

An injunction will stop McCormack selling GL+ outside the US from December 31. Nearly a quarter of its 1,000 sites are in Europe and it is still selling 250 copies a year.

ROBERTSON . . . Support.

IBM sues NatSemi for $7bn

by Keith Holder

IBM has filed a $7.5 billion lawsuit against National Semiconductor. The suit is the latest shot in a continuing battle between the companies over the alleged theft of IBM trade secrets.

The suit is based around the value of the alleged stolen information, which IBM says was obtained through espionage by National Semiconductor and its computer subsidiary National Advanced Systems (NAS) in partnership with Hitachi and NCL Data.

An IBM attorney has estimated the value of the information at between $750 million and $2.5 billion, equivalent to about one year's worth of research and development.

IBM filed the suit because it had been unable to reach a settlement with National Semiconductor, a spokesman in New York said.

A spokesman for NAS said earlier that efforts were being made to reach an out-of-court settlement similar to that between IBM and Hitachi, earlier this year.

He added that the US legal system was not quick on cases like this and there was "still a lot of time for negotiation."

A settlement similar to the Hitachi one could cost NAS dearly. Recent reports in the Japanese Press claim that Hitachi has paid IBM about $300 million in damages and legal costs. It also has to submit new products to IBM inspection for the next five years.

IBM's case against NAS suffered a setback last week when the federal judge handling the case dismissed portions of IBM's claim.

He said that, with respect to the parts alleging transportation and receipt of stolen items after the operation began, IBM could not prove that the companies involved knew the items were stolen.

TEBBIT . . . "Campaigners are wild, cruel and callous."

Tebbit returns fire on PO engineers

by George Black

TRADE and Industry Secretary Norman Tebbit last week launched a fierce counter-attack on Post Office engineers to stem the tide of opinion against privatisation reflected in the opinion polls.

He told a private meeting of Tories at the House of Commons that the Post Office Engineering Union was "naturally allied to monopoly" and that the cause it purported to serve – that of the customer – was "subservient to other causes," which he called ideological.

Tebbit accused union campaigners of being "wild, cruel and callous", with suggestions that the blind and deaf would suffer under a private telephone system. The Bill would contain safeguards for kiosks, emergency services and rural areas, he said.

However, a confidential document leaked to The Guardian from an Industry Department committee seems to undermine some of Tebbit's arguments. By the year 2000, only half of the population – the urban half – would have the benefits of two-way telecommunications based on cable TV, says the paper.

But its author, alleged to be an under-secretary advising the Secretary of State on technology strategy, doubts if it would be worth forgoing the benefits of competition because of such a development. It says there is "a whole package of benefits and disadvantages people receive or suffer from when they choose to live in a rural area, and there is no special reason to destroy the economic balance between them".

The paper also recommends that British Telecom should at some stage be split up.

The departmental consultative committee envisages the "duopoly" of BT and its private rival, Mercury, backed by Cable and Wireless and BP, as being only a "transitional stage".

Sperry PC for UK early in 1984

SPERRY unveiled its Personal Computer – an IBM PC clone built by Mitsubishi – in the US this week. It should reach the UK early in 1984.

The box is a standalone desk-top unit based on an Intel 8088 processor, runs MS/DOS, and comes with a standard 128K RAM. It will be available in five models ranging from $2,600 to $5,700, with Basic, Multiplan, and Wordstar bundled in.

Bid for CAL

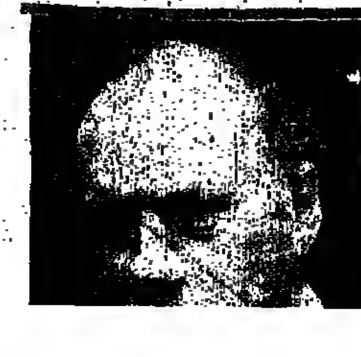
CPU COMPUTERS is set to buy cash-strapped Computer Ancillaries, CAL. It has bid for the 70% of CAL that it does not already own, in a share swap worth £285,000. As well as distributing Dorango machines CAL sells an IBM Personal Computer lookalike, designed and built by CPU's LSI Computer division.

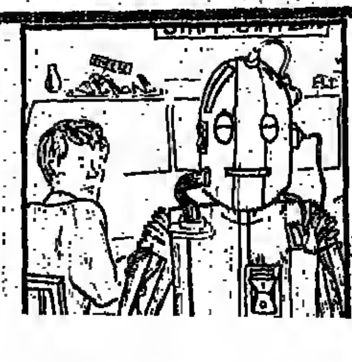
POEU dispute

ABOUT 1,100 Post Office Engineering Union staff are being sent back to work by the union next Monday. But another 1,450 in British Telecom International, covering overseas telex and satellite services, will stay out. The union's general secretary Brian Stanley said the fight against privatisation was going on.

Laser launch

SIEMENS, the German computer and peripherals manufacturer, is to license, build and market Storage Technology's first laser printer, the 6100. It will be launched next March and is compatible with all IBM and plug-compatible mainframes. UK price will about £125,000.





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Takeover by Hogan in push for City systems

BOOMING US banking systems house Hogan has picked up an international banking specialist for an undisclosed seven-figure sum to push its move into the London financial market.

Hogan, which set up in London last April to sell its retail banking systems, has completed the purchase of the small New York international banking systems specialist Henco, a private company owned by founder Bruno Henry.

Richard Warren, Hogan director of European operations, said: "One of our mutual users, a UK clearing bank, said that there was an interesting match between the two companies. We began negotiations in August and signed in mid-October."

Hogan had a turnover of $556,000 in 1980, and has moved to $17m for fiscal 1983.

Both software houses are committed to IBM hardware. Henry said: "Banking is evolving so fast that we don't know where it's going to be in five years. The banks don't want to be held up by hardware problems, so we have developed modular systems in the mainstream of IBM development."

HENRY . . . "We don't know where banking is going."

System X wins first £20m order at Hull

by Donald Kennett

SYSTEM X has shaped up just in time to win its first major competitive order. Worth about £20 million over the next seven to 10 years, the order is the result of Hull City Council's eagerly-awaited evaluation of six bids from international suppliers to modernise its network of 14 telephone exchanges.

Hull telephone manager Andrew Matthews said System X had scarcely been in the running until a few weeks ago, because it looked as though the production volumes were going to be too small to bring prices down or to sustain a continuing R&D programme.

The commitment Plessey had shown to going for overseas sales when it bought Stromberg Carlson in the US had been a decisive factor, he said, and the accelerated purchasing programme announced by British Telecom at the end of last month had clinched it.

Hull operates the UK's only independent local telephone network. It was the only local administration to stay independent when they were merged with the Post Office to form a national network early this century.

System X was proposed in a joint bid by GEC and Plessey. Bids with part UK involvement came from Thorn-Ericsson and Standard Telephones & Cables (STC).

STC has been Hull's main supplier for most of this century and was proposing to supply System X to Hull before it left the System X team last year.

This time it proposed the System 12 digital system designed in the US by its major shareholder ITT, in a joint bid with ITT's Belgian subsidiary Bell Telephone Manufacturing which has taken charge of System 12 development for ITT.

Thorn-Ericsson won the contract two years ago to supply the digital transmission systems that will link the System X exchanges in Hull. For the current switching system contract it proposes the successful Axe digital system developed in Sweden by its partner LM Ericsson.

Other bids came from France's CIT-Alcatel, which recently beat System X to two deals in India; from Canada's Northern Telecom, which recently announced plans to start manufacturing digital telecommunications systems in the UK; and from AT&T and Philips, a joint venture formed earlier this year to make US-designed digital systems in Holland.

A condition of the 25% loan from the European Investment Bank that is helping to finance Hull's network modernisation is that the main contracts be subject to international tender, at least among the members of the EEC.

The first of Hull's System X exchanges is due to be in service by the end of next year. It is one of an initial batch of three, costing more than £5 million, that will serve 37,000 of Hull's 150,000 subscribers.

Matthews said that comparing the price per line of between £135 and £160 that appeared to be payable under this contract with the £250 to £400 believed to have been paid by British Telecom for System X in the last few years was misleading since this contract excluded transmission plant, digital to analogue conversion, power supplies and buildings.

France plans European super centre by 1984

by Jack Gee

A EUROPEAN supercomputer centre in France for scientific calculations has been proposed by the French government, which proposes to put up 40% of the budget.

Premier Pierre Mauroy has promised full support by France for the centre to be built at Toulouse for industry and research workers from all over Europe.

The centre, whose original impetus comes from scientists in South-west France, will be equipped with a supercomputer with easy long distance access, training facilities for scientific data processing users, and well-stocked data banks.

Although the target date – to get the centre operational by the end of 1984 – might seem optimistic, France will submit detailed plans to the European Council of Ministers early next year. France succeeds Greece in January in the chair of the European Community.

The French government is prepared to put up 40% of the total budget right away – in the hope that its European partners will provide the other 60% – to avoid any delay in getting the scheme off the ground.

MAUROY . . . Full support.

The French choice of Toulouse as the site for the scientific calculating project is dictated in part by its closeness to Spain and Portugal, which are waiting to join the Common Market.

Observers in the French data processing industry say the Toulouse project could face the shortage of top-rate specialists which has hampered a venture by Cray Research at Ecole Polytechnique, the elite establishment which turns out France's top managers and technical brains.

Another handicap is the likelihood that France's Iris-Marie programme to develop a supercomputer will not bear fruit until 1986.

So the Toulouse centre will require the acquisition of another Cray machine, an arrangement which would probably be coupled with a government order that a front end should be supplied by French firm Bull.

Govt speeds up the Telecomms Bill

by Philip Hunter

THE government now hopes to complete the Third Reading of the Telecommunications Bill and send it back to the Lords by Christmas. The standing committee examining the Bill has finished its work, and just two more days have been allocated for debating the report and for the Third Reading.

This tight timetable was labelled as "ridiculous and outrageous" by Peter Shore for the Opposition. But John Biffen, Leader of the House, said the shortened time was reasonable, because the present Bill and its predecessor had already been discussed for 240 hours in committee.

Kenneth Baker, Information Technology Minister, added that the Opposition had consistently wasted time on the Bill, and said the government had a clear mandate for the measure. The aim was to have a royal assent for the Bill by late spring or early summer.

The director general of Oftel, who would be responsible for co-ordinating UK telecoms policy, would be appointed some weeks after the royal assent, and shares in BT would be offered for sale in the autumn of next year.

In other developments in Parliament last week:

- Baker told MPs that there are now 11 major UK makers of silicon integrated circuits. In 1982 the UK market was worth £302 million, and UK firms made £208 million worth of integrated circuits.
- Baker said that about 6,500 primary schools and 16,000 secondary schools had received microcomputers in the schools programme.
- Progress had been made toward standardising software, hardware, communications equipment and flow of data between police computers, Douglas Hurd, Minister of State at the Home Office, revealed in a Commons reply. The Home Office is working on a model for criminal information systems, which it hopes to recommend to police forces.

Lanier enters micro market

by John Riley

US WORD processor manufacturer Lanier Business Products, recently taken over by the giant Harris Corp, last week formally announced its entry into the microcomputer market.

Lanier had a strong profile in the US, with a substantial base of dictation machines and word processors. Harris hopes to use its aggressive marketing organisation to expand into the commercial sector from the technical sector.

According to David Reavley, Lanier UK managing director, Lanier has already picked up £200,000 advance orders for its micros.

Lanier launched its word processing activities in the UK last May, since when it has sold about 50 EZ-1 machines.

The new micro, the LBP1000, runs CP/M and MS/DOS. A system with 256 Kbytes of memory, dual floppy disc drive and daisywheel printer costs £4,525, and with a 10 Mbytes hard disc the price is £6,500.

A new word processor, EZ-2, has also been announced, as well as Lanier's own local area network called System 5000.

The basic local area network configuration has a starting price of £7,500.

Frank Walters, Harris' UK general manager, says that Harris Corporation appreciates the problems smaller companies face when taken over by larger ones, and that Lanier will keep its identity within the larger organisation as a separate division.

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Three set store by optical disc devices

by Keith Holder

THREE contenders in the optical disc stakes have declared their hands this week.

Storage Technology, Thomson CSF in partnership with Xerox, and Toshiba have all announced write-once optical storage devices, though only the Toshiba machine is available in the UK now. The other two will not be available in Europe until the third quarter of next year.

The Toshiba DF 2100-R, marketed in the UK by Lion Office Machines, is a library filing system which, according to its manufacturers, can store up to 10,000 A4 documents on a 12in disc.

Thomson's gigadiscs are aimed at the mini/micro market, with one billion bytes stored in a 12in disc.

Meanwhile Storage Technology has set its sights on the lucrative IBM market with its 7600 subsystem and boasts compatibility with IBM's 370, 4300 and 308X mainframes and plug compatible mainframes running MVS. Storage capacity is four gigabytes.

BRITTAN . . . "We propose holding discussions."

Cable licences go to eleven groups

by Donald Kennett

ELEVEN consortia are to get licences for pilot cable projects, provided detailed negotiations with the government are concluded satisfactorily.

The 11 were selected from 37 applications received in August in response to the government's plan to speed the introduction of advanced wideband cable services to homes and businesses.

Eight of the 11 are to use the "switched star" layout favoured by the government and claimed to be better suited to advanced applications involving high-speed, two-way communication of data and video images. The three operators of the alternative "tree and branch" type of system do not plan to provide interactive services.

The detailed negotiations with the government are believed to be aimed at holding the companies to promises made in their proposals. In the US competition for cable network franchises got so hot that many companies promised facilities they were in no position to provide by the time systems were installed.

Home Secretary Leon Brittan, who announced the licences, said in Parliament: "We now propose holding discussions with 11 applicants to explore further some specific points in their applications. Provided these discussions are concluded to our satisfaction, we shall issue pilot project licences to them."

A spokesman for the Department of Trade and Industry said the negotiations were to start this week and could last into the spring.

Further applications for cable licences would be invited in the autumn of next year, by which time legislation to set up the Cable Authority should have taken effect. A Bill is to be introduced in the House of Lords this month.

The existing cable television operators have a poor showing in the initial awards. Thorn EMI is involved in three winning projects, two of which also involve British Telecom. Rediffusion is involved in only one, although it was party to four proposals. Visionhire was party to four proposals, but none was successful.

Racal-Oak, the company set up by Racal with a US partner, is in line for a licence, as is GEC which also set up a joint venture, GEC-Jerrold, to get into the industry. GEC-Jerrold is also involved as an equipment supplier to at least five of the operators.

Plessey is involved with two successful applications, both of which also involve BT. Standard Telephones & Cables is involved in one, also in partnership with BT.

Five of the 11 systems are to be installed in the London area and the others scattered from Aberdeen and Belfast to Swindon.

Plessey takes the Convergent line

by Dave Madden

CONVERGENT Technologies has signed a $30 million contract with Plessey Office Systems to supply it with its latest workstation offering.

Plessey will attach the kit called the NGEN to its new iDX private digital exchange, part of its IBIS Integrated Business Information System.

Martin Lippmann, Convergent UK sales manager, says the company will close several "substantial" orders from other UK telecommunications manufacturers within the next three months. GEC's A. B. Dick signed a $60 million deal with Convergent in the US in October, and Convergent hopes GEC will do a separate deal in the UK.

GEC showed an NGEN at the Telecommunication Managers Association exhibition in Brighton in September.

Plessey's name goes on to a remarkable list of OEM agreements that Convergent has made this year. Burroughs, NCR, Prime, Gould SEL, Datapoint, TRW, C3, and Raytheon have all signed major orders for Convergent products. Lippmann pointed out that the company has another 100 OEM customers worldwide, all contracted to take between $3 million and $10 million worth of kit over the next two years. That adds up to orders approaching $1 billion – for a company which had turnover of just $13.1 million in 1981.

Convergent's NGEN uses Intel's 80186 processor. Lippmann said: "We are Intel's second largest chip customer after IBM, and we are helping them to get the processor right – we have had no greater difficulty in getting hold of the processor than anyone else. Plessey already has two NGENs."

Convergent expects to be in full production of its new generation of products, including the NGEN, by the second quarter of 1984.

BL Systems changes name to Istel in expansion plan

by Keith Holder

THE successful computer arm of State-owned car manufacturer BL is going all out to establish a separate identity for the world market. BL Systems, as well as changing its name to Istel, has put forward ambitious plans to expand its range of software and services.

Development is already underway on software for micros, expert systems and viewdata networking. The last of these involves using video discs to link micros to the viewdata network, and has won the company a major manufacturing project in the Esprit programme.

The name change takes effect from the end of the year, and is designed, said managing director John Leighfield, "to give us a definite identity as a systems house, allowing greater opportunities to extend our customer base outside the BL companies."

He denied suggestions that the move was an attempt to distance the company from BL before the government goes ahead with plans to sell the car manufacturer to the private sector.

"We are proud to be a part of BL, and it will continue to be our most precious customer."

The company will remain a wholly-owned subsidiary, though it is planned to increase outside contracts from the present 10% to 30% of turnover over the next five years.

Leighfield dismissed rumours that profitable products, such as the company's microwave network, would be sold off.

Turnover of BL Systems this year is expected to exceed £30 million.

Contracts with Xerox, Ford and Exxon have been won this year by a newly-formed US division, BLSL.

"BL has always encouraged us to seek a wider market for our products," said Leighfield. "We are now recognised as one of the largest systems houses in the world."

The company was formed in 1979 when a decision was taken by BL to group together individual pockets of expertise which were scattered throughout the various divisions.

BL Systems has now grown into three divisions with a staff of 1,050. "It's quite a spectacular rate of growth for such a young company," said Leighfield.

He said the company had gained a reputation for innovation and achievement in the fields of flexible manufacturing systems, computer-aided design and networking.

Its reputation started with the success of a computer-controlled production system called See-Why, which lets an operator try out different configurations for a production line to see where logjams might occur.

The system was used on the Metro, and won the British Computer Society's applications award.

"Once word of this got out, we started to get enquiries from outside companies which wanted to see if we could solve their problems," said Leighfield.

These were not from other car manufacturers: less than 1% of BL Systems' outside business is in the automotive industry, he said.

The company was keen to involve itself in collaboration projects and did not rule out the possibility of working with the Alvey committee on communications systems.

"Innovation is the name of the game. We might have learnt a lot already, but we still have some way to go," said Leighfield.

LEIGHFIELD . . . "Innovation is the name of the game."

Low-price LAN set for £1 million sales

by Nuala Morao

SALES worth over £1 million are expected next year for V-Net, a low-price local area network built by micro and terminal distributor Midlectron.

V-Net, set for volume deliveries in January, is manufactured by Midlectron's special products division and has a starting price of £550.

Steve Hewitt, manager of the special products division, said: "V-Net was designed to a price. But it is an incredibly powerful system. Between four and 32 systems or peripherals may be connected to the network without it slowing down at all."

V-Net can be installed by the user and will work over a distance of 400-500 yards. The basic configurstinn consists of a base unit with power supply and bus controller, costing £150, to which are added RS232 interface units of four ports, each of which costs £400.

Hewitt said: "We are looking to the small office market. We expect sales of 2,000 to 3,000 units in the first year."

CURRY . . . Negotiations in India.

Acorn wins huge order for Indian schools kit

by Philip Hunter

INDIA has taken its first step toward putting microcomputers in its schools by placing a big order with Acorn Computers.

The size of the order has not been disclosed, but up to 200,000 machines worth about £100 million could be involved if India adopts the BBC microcomputer as its standard education machine and installs it in all its schools.

The present order is for machines to be used in Indian colleges, where education software is to be produced for a schools programme.

Acorn director Chris Curry was recently in India to negotiate the deal and arrange for India to assemble the machine itself to meet future demand.

India, like most Third World countries, insists on starting local assembly as soon as possible as a condition of the initial order.

The announcement of the Acorn order came the day after the Queen, in New Delhi, presented President Zail Singh with 30 BBC Acorn computers linked in five local area networks, for use in Indian universities and colleges to evaluate the future use of computers in education and develop software.

Acorn is the first UK micro maker to make firm progress in the Third World.

Sinclair Research announced in the summer that it was holding discussions with China, but no firm decision has yet been made. Sinclair hopes to seize a slice of the Indian market, and has been holding talks for some time with the Indian government.

But Acorn has taken the stage, and hopes to follow with an order from China, where its Econet local area network system based on the BBC micro is being evaluated.

Multi-user micro to be made in UK

by Dave Madden

A LIVERPOOL start-up company hopes to be manufacturing a multi-user micro in the UK next year.

Dataday Computing has picked up sole UK distribution rights to a machine called the Ultraframe from Independent Business Systems (IBS) of Livermore, California. Les Clarke, Dataday founder and managing director, says he will be making the Ultraframe in Liverpool in 1984.

The Ultraframe system is basically an S100 bus with slots for IBS Slavenet processor boards. At the moment Dataday supplies Slavenets with a Z80A processor running at 4Mhz, and 64K or 128K of RAM. IBS is due to have an Intel 80186 version, with 256K RAM, ar Comdex Vegas this week.

Clark said: "We are assembling the machine at the moment, but next year we'll only ship in the boards. We are looking for UK parts and fabrication."

So far Dataday has sold two systems in the UK. A six-user configuration with 63 Mbytes of hard disc will cost £13,600.

PoS system bids to shake up market

by Donald Kennett

A SYSTEM with £1 million behind it is set to liven up the UK point-of-sale (PoS) market. Last week saw the formal launch of Warrington-based Microsell and its modular PoS system, the Microsell 8000, following a management buy-out backed by the British Technology Group and two other investors.

The system had been developed at a cost of £450,000 by Menzies Communications Systems, which was a subsidiary of the John Menzies retail chain until Menzies sold it to the US telephone manufacturer Comdial last year. To this has been added more than £500,000 from venture capitalists Armour Trust, Alan Patrikoff Associates and the BTG, as well as from the management team itself.

The new company is poised for "enormous growth", according to managing director Mike Bielinski. "There are only two companies in the country doing the job properly," he said, "ourselves and Thorn-EMI."

The point-of-sale market has consistently failed to take off as expected. But in Bielinski's view this was because systems were too expensive and too difficult to tailor to retailers' requirements.

One of Microsell's first customers is the Scottish electrical retail chain Clydesdale, which is equipping its 100 stores with Microsell ills. The exercise will cost £500,000 including communications and finance director Bill Spicer expects the system to pay for itself in two-and-a-half years.

"We are now loading a branch a day and expect to be complete by April," Spicer said. "The only reason we delayed this long was through waiting for Microsell to sort out its structure. The only worry was for the future – until they got their backing."

The payback will come mostly from savings on staff. But this was causing no problems, Spicer said. There would also be a major impact on stock distribution and credit handling. "Updating stock records has been a 16 days post-sale event," he said. "Now they will be ready for the following morning."

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SALES BRIEF

Rodime wins £5 million disc deal

SCOTTISH Winchester disc drive maker Rodime has clinched a £5 million UK order following its recent export to the US. Symbiotic Computer Systems of Surrey has ordered Winchester drives from all at Rodime's 5¼in range with formatted capacities up to 42 Mbytes, as well as 3½in drives with up to 10 Mbytes.

Symbiotic will use the drives for its Symbfile range of hard disc systems which are assembled in Croydon and used for leading micros, including the Apple.

Soap takeover

HOSKYNS has won a £300,000 deal with Manchester-based Cussons, maker of Imperial Leather soap, to take over running of the existing ICL installation while the company converts to IBM. The firm had planned to run ICL and IBM in tandem for two years while software was being rewritten, but ran out of space.

Training contract

MANPOWER Services Commission has engaged the independent maintenance firm Mills Associates to service the 77 Commodore microcomputers used at its Skillcentres and Rehabilitation Centres for training. Mills is the only maintenance firm approved by Commodore in the UK.

Serving the Navy

COMPUTERVISION, computer-aided design and manufacturing specialist, has renewed its contract with the US Navy, taking the total value to $100 million. The agreement calls for extra workstations, maintenance and support to be used for production and development of new weapon systems.

BT £2m order

GENERAL DataComm UK has scored a £2 million order from British Telecom for multiplexers, after winning a £1 million order from BT's rival, Mercury Communications, for its private digital network. BT will use the multiplexers for its Kilostream and Megastream digital services.

Water control

LOGICA is to install the first of a new breed of control systems for the water industry in a contract with the Anglian Water Authority worth over £1 million. Logica will fit out the authority's operations centre in Norwich with a DEC PDP-11 system and also supply data capture equipment to 200 outstations, including sewerage works, pumping stations, river sites and tidal flood warning stations along the East Anglian coast.

Software choice

SCIENCE and Engineering Research Council has gone to Management Science America (MSA) for accounting software worth £100,000. "MSA came out ahead of others on functionality and ease of use," said Brian Davies, head of computing at SERC's Daresbury laboratory.

First order

COMPUTER Technology has taken its first order worth £80,000 for the recently launched Momentum 9000 range from the Edinburgh department store Jenners, to replace a bureau service for accounting and payroll. The 9000 range replaces the 8000 range with an extra model at the bottom and top ends.

Apricot supplier

APPLIED Computer Techniques has chosen Panasonic UK to supply the high resolution CRT displays for its Apricot micro. The order, Panasonic's largest in the UK so far, is expected to involve at least 60,000 units.

British Telecom Merlin introduces its 4th Generation modems.

The low-cost flexible answer to trouble-free data transmission. Merlin's range of 4th Generation modems are designed and manufactured in the UK to get the best out of the UK telephone network. Extensive use of the latest in LSI and microprocessor technology means that as well as offering you a wide range of facilities they consume less power and take up less space.

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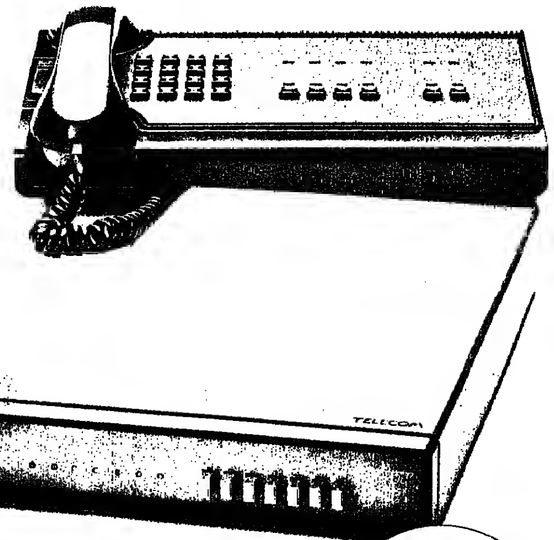

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MINOTTO . . . "We won't be bound."

UK gets new micro retailing group

by Nuala Moran

THE ex-European president of Computerland, the world's largest micro retailer, is setting up a micro franchise retail chain in the UK.

James Minotto has set up Interface Network with Brion Allaney, who, as managing director of Sperrings computer shops, had the first UK Computerland franchise.

Interface plans to open 80 stores before the end of 1987. The first will open before March 1 1984 at one site within 30 miles of London. Ten shops are planned for the next year – six will be franchised and four run by Interface.

Computerland set up its first two UK shops in 1982, and a third in October this year.

Programs Unlimited, another US company, opened its first UK shop in Baker Street, London, about three months ago. It has a shop in Croydon and, according to managing director Jeffrey Cooper, "plans to open quite a few more in the next six months".

Also last week, Greens Business Systems, a wholly owned subsidiary of Debenhams, announced that it is opening seven business micro centres in Debenhams shops (see story this page).

Minotto said: "Interface will offer turnkey operations to businessmen on micros. What we sell will be based on a solution to a particular business problem, so we won't be bound to particular hardware or software."

Interface has £1m backing, arranged by venture capital agency Baronsmead Associates. The sum of £300,000 was raised under the government Business Expansion Scheme.

Business micros at Debenhams

by Paul Fisher

HIGH street mass marketing of business micros has taken another step forward with the opening of seven Greens Business Systems (GBS) stores within Debenhams shops. A further 35 centres are planned in the next 18 months and, claims GBS managing director Michael Milman, Greens will "soon be the biggest dealer in the country".

Milman says that £750,000 has been invested to date and that a further £400,000 has been set aside for 1984 advertising. He predicts that next year's GBS turnover will be £10 million.

Greens, a wholly owned subsidiary of Debenhams, is already strong in home micro sales. However, the seven business centres have separate selling areas in Debenhams shops at Guildford, Oxford, Harrow, Romford, Southampton, Staines and Harvey Nichols in Knightsbridge.

Milman is anxious to stress that GBS is entirely separate from Greens' leisure sales. "There is no crossover between business and home products," he says. "Some of my competitors have made this mistake and it puts businessmen off."

The GBS stores are selling a limited range of hardware from ACT, IBM and Apple, backed by an equally limited choice of software from Pulsar, Lotus, SuSoft, Systematics and Ashton Tate.

Milman explains: "We have resolved the dilemma of what can be fully supported by stocking best sellers only. We won't be a guinea pig for any manufacturer."

Other parts of the GBS sales pitch are a range of 28 training courses, plus competitive leasing and maintenance deals.

Debenhams has a "price promise" policy with the pledge that it won't be undersold. All Greens stores are locked into this.

BIS gains openings abroad

by John Kavanagh

A £500,000 investment has given US services group BIS new operations in the US, Australia and fast-growing Far East markets and taken it into the microcomputer software business.

The group has bought 40% of Johnston Brown and Associates, thought to be Australia's biggest international software firm. BIS has the option to take 76% of the company within three years.

JBA has offices throughout Australasia, and in San Francisco and London. So far it has specialised in IBM System 34, 36 and 38 computers.

It is strong in the banking market in Australia – it does 40% of its business there with a rival to BIS' Midas package. But it is now dropping the rival to boost Midas sales in Australia.

The company is also moving into mainframe software, and has taken on distribution of Peachtree microcomputer packages in Australia.

"This gives us a much bigger piece of the action in South-east Asia, Australia, New Zealand and the Pacific," said BIS chairman Brian Allison. "That area is really taking off. It has an economic growth rate twice that of Europe."

BIS already has US offices, but Allison said the deal gave the group "some very strong IBM people on the West Coast".

JBA was formed six years ago and now has 120 staff. Its turnover this year is expected to grow 27% to over £5.5 million – and to double by the time BIS takes the company over in 1986.

The other 60% of the company is owned by the three founder directors. Nine or 10 staff also have a stake.

BIS' £500,000 investment is in the form of new shares; the money is not going to the directors.

Allison said BIS had been impressed by JBA's growth, achieved on the back of limited capital. "It needed more money to do what it wanted to do internationally," he said.

"Very few people in Australia understand the computer services industry. That was why we got the government go-ahead so quickly."

■ BIS Applied Systems has entered the contract staff business. It has formed a contracts division "to meet the need for a prestigious service offering reliable, top-class, well-trained specialists".

Tesdata goes in for IBM database field

by John Riley

TESDATA, the US performance monitoring systems supplier, announced last week that it had diversified into the IBM database market.

As a result of an exclusive agreement with Computer Corporation of America, to market its Model 204 database management system in Europe, Tesdata aims to bite into IBM's IMS (Information Management System) base. Sites already using the system in the US include the White House, and 14 US intelligence agencies including the National Security Agency, says Tesdata.

"IMS users have a problem getting data out of the database as it expands and can't work with it easily," says Peter Junker, Tesdata's newly appointed European sales and marketing director. "For those who hate IMS, we can offer an escape route."

He distinguishes the two generations of database management systems on offer at present. "The DP manager," he says, "can either

JUNKER . . . "Escape route."

have designer database products – like IMS, IDMS or Total – with a physically linked data structure; or a second generation end user relational database system, offering data independence and inverted files – such as Datacom, Adabus or Inquire."

However, he says that designer database products are poor for ad hoc queries, and require a lot of maintenance, whereas, although end user systems are more user-friendly, they give poor performance under heavy loads.

Computer Corporation's Model 204 is different, he says, "offering the performance of the designer systems and the flexibility of the end-user systems".

Microsoft quits Unix project

by George Black

MICROSOFT has dropped out of a project to join Unix System V to Intel's iAPX 286 chip and has been replaced by Digital Research.

The reason is that the job has turned out to be bigger than either Intel, Microsoft or Western Electric, the Unix vendor, had anticipated. Now Digital Research has stepped into the breach, claiming it can complete the work by mid-1984.

Intel's European systems manager Don Street, said it had originally chosen Microsoft to carry out the job but as details of the specification had unfolded it had become clear that joining up Microsoft's Unix implementation, Xenix, was not a viable option.

The development would not affect Intel's relations with Microsoft, Street said.

He predicted System V and Xenix could co-exist, with the former the major force for researchers and academics and the latter as the commercial standard.

Digital's director of European operations, Paul Bailey, seems keener on System V than Microsoft has been – he does not have Xenix to nurse.

Microsoft's UK manager David Fraser said the company had discovered there was "nothing to be learnt" by continuing the job.

DP squash tournament nears climax

THE data processing industry squash competition, the Work Line Tournament, reaches its climax at the Lamb's Club in London on December 3 and 4. Semi-finals are between Barclays Bank and DVLC Swansea, and National Westminster Bank and British Aerospace.

Motorola move

MOTOROLA has amalgamated its data communications subsidiary, Codex (UK), and the UK division of its Information Systems Group, which handles Four Phase kit, into one organisation – Motorola Information Systems Ltd. The company is looking for £20-£25 million turnover from the organisation by 1985.

IBM educates

THE first IBM System 38 to be installed in a British educational establishment went into Trent Polytechnic in Nottingham last week. It will be used for routine administrative processing. It has two Mbytes store and 200 Mbytes of online disc storage.

EEC contracts

THE CAD/CAM Association and the Open University have both won contracts from the European Community's multi-annual IT programme. The CAD/CAM Association is to help the commission draw up a short term programme to supply research to manufacturing industry, and the Open University has been awarded £75,000 to draw up plans for boosting IT-based educational technology in the Community.

On the rack

DATA General has released a rack-mounted OEM version of its MV8000 32-bit supermini in the US. By using 256 Kbytes' dynamic RAM chips and 2000 gate array logic circuits, it has reduced the number of boards from 11 to seven. Also new is Array plus, a block floating point array processor costing $18,000.

By degrees

TWO top names from the computer industry will receive honorary degrees from City University at London Guildhall on December 5. British Telecom director John Alvey, who took an engineering course at City's forerunner, Northampton Polytechnic, over 30 years ago, and ICL managing director Robb Wilmot, who graduated in electrical engineering at Nottingham University in the mid-'60s, become doctors of science.

Rapid contract

DISC and tape supplier Independent Computer Engineering (ICE) of Ashford, which has until now concentrated on the foreign market, appointed Rapid Terminals, a division of Rapid Recall, its UK distributor last week. ICE packages Rodime disc units and Cipher tape drives and adds its own interfaces, control software and multiplexers.

Heads exchange

AN exchange service for crashed Control Data disc heads has been set up by Leeway Data Products. Replacements can be new or refurbished devices, guaranteed, bonded and flown to the original manufacturers' specification. Stocks are held for nine drive types, ranging from the 9448 to the 9760.

Finnish the deal

ELECTRONICS components dealer Bosledge Computer Services of Manchester has moved into the micro market. It has signed a deal with the Finnish micro manufacturer, Nokia, to market its Micro Mikko 2, an Intel iAPX 186 based machine with 256 Kbytes store,

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Texas and Intertec spur micro revival

by Keith Holder

TWO major micro manufacturers have launched new business computers in a bid to revitalise their tarnished images after market failures and financial problems earlier in the year.

Texas Instruments has released a portable version of its IBM-compatible Professional Computer, while US-based Intertec, also keen to put recent upsets behind it, will release its HeadStart 16-bit machine early next year.

TI's portable micro is the second machine in a family designed to cover the whole business systems market, said David Monk, marketing manager for TI data systems group. It uses the same boards as the desk-top model and has the same range of options and facilities, he said.

The company's failure in the home computer market did not affect the business systems division. "Our commitment to the professional sector is total," he added.

He said that while much had been made of the demise of TI's home computer, it was a "strictly limited withdrawal".

Intertec's position in the business micro market rests on its Superbrain, an eight-bit machine which gained wide acclaim when it was launched in 1979. But failure to follow it up with new products put the company in financial difficulties earlier this year.

Brian Jones, marketing director of Icarus, which will market the machine in Britain, denied that the company's fortunes rested on the sales of the new product.

"If it isn't an overnight success, Intertec won't become a name of the past," he added. A portable version of the machine is also nearing completion, said Jones.

Both machines will come on to the European market early next year, when stocks have been built up.

They will face competition for similar machines, including Bytec's Hyperion and a range of portables from Jonos, which has announced a 16-bit machine due for release in the UK in December.

Like Bytec, TI has announced a Lotus 1-2-3 option for its professional family and networking facilities. "It's a worthy competitor," said Monk of the Hyperion.

He added that where TI aimed to score over its rivals was in offering complete solutions using a number of different variants of the same machine. "By using the same boards for all, we are giving our customers flexibility without sacrificing the options on software and networking facilities. The cost of the machine will be comparable with the desk-top version," he added.

By comparison, the Intertec machine features a RAM disc which eliminates the need for two floppy discs by allowing users to allocate any fraction of the machine's one-Mbyte main memory to behave as though it were a second disc.

The machine is claimed to be up to 50 times faster than its competitors for enquiry response.

Jones said that in terms of technology and performance the HeadStart would be "as much of a leap forward as the Superbrain was in its day".

MONK . . . "Strictly limited withdrawal."

Wang buys 15% of VLSI Technology for $34 million

by Dave Madden

WANG LABORATORIES has taken a 15% stake in custom chip maker VLSI Technology, of San Jose, California, for $34 million.

VLSI is one of the brightest young things in Silicon Valley. Its first public share issue was snapped up in February and valued the company at $66 million – despite the fact that it is just three years old and had losses of $3.6 million on turnover of $21 million in 1982.

But what Wang is interested in is VLSI's integrated circuit technology. VLSI is reported to be working on customised single-chip microcomputers – putting CPU, input-output, ROM and RAM on a single CMOS device.

Richard Levy, Wang UK director of marketing, commented: "It is good to have a relationship with a manufacturer in such an evolving marketplace as personal computing. We will be driving VLSI with the specs of new products. It wouldn't be wrong to assume that we are interested in personal computing on a chip."

VLSI will issue about 2.8 million new shares to Wang at $12.12 each – the same price as its initial public offering. The company, which also builds ROM chips for video game players, got stung when the bottom fell out of the video games market – it lost $1.6 million on turnover of $7.6 million in the first quarter of fiscal 1983 – and Levy expects it to move away from that business and be "more closely geared to requirements from Wang".

VLSI is backed with $40 million of venture funding – shareholders include Olivetti, and Evans and Sutherland. Corporate investors hold around 15% of the company.

In the shorter term, Levy confirmed that Wang plans to extend its VS range, both up and down market.

■ IBM has raised its stake in Intel to 16.3%. The company made an initial investment of $250 million for 12% of Intel last December.

Hale's ex-hardware firm tries software

by George Black

STERLING Systems, the company founded by Peachtree's John Hale to write programs for Honeywell hardware, is now branching into software for Scandinavian manufacturer Norsk Data.

The new direction is being taken just a year after Hale – recently promoted by micro market leader Peachtree to its base in Atlanta – sold out his remaining 51% in his Honeywell venture. MSA put pressure on Hale to give up his interest because the company felt it conflicted with the MSA and Peachtree philosophy that the mini had no future.

John Imlay, chairman of Peachtree's parent MSA is on record as saying "the mini is dead".

The new bosses changed the name of the Windsor organisation from Hale Computer Services to Sterling Systems and now have changed its goals too.

"We decided we should not have all our eggs in one basket and were looking for another make to put our financial applications suite on," said technical director Ian Nixon.

"Norsk hasn't reached the age of complacency yet, as a lot of the makers have – that's why we chose them."

NIXON . . . "Looking for another make."

So far, Norsk has less than 100 sites in this country, but its presence is perhaps more significant than the figure indicates, because some of them are large even though shunning publicity – such as British Nuclear Fuels.

Sterling now has two UK installations on Norsk machines, one being City-based engineering consultancy Noble Denton. Nixon hopes to have its entire Honeywell suite of 600 programs converted to Norsk format by mid-1984.

Norsk is keen to collaborate with Sterling because its strength has been in the scientific and technical community, but it wants to break through into the general commercial world.

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IT squeezes out rest of university research

by John Riley

INFORMATION technology's growing share of university research cash has put the squeeze on basic scientific research in other fields.

That was among several hard-hitting comments made last week by Professor John Kingman, chairman of the Science and Engineering Research Council, which is responsible for doling out research grants to universities and polytechnics.

Strapped for cash, he expressed his "exasperation" at having to pass up opportunities to collaborate with industry and having to turn down as much as 25% of the top quality "alpha" graded research proposals.

"As a nation we're not prepared to put enough into basic research whereas, by contrast, other countries are increasing it. The UK is out of step. It is not a luxury. Taking the long-term view, if you don't maintain basic science, then applied science will crumble rapidly," he explained.

Kingmon recognises the importance of information technology research, and of the SERC's contribution to the Alvey programme. The SERC has taken the novel move of giving up some of its autonomy to the Alvey directorate when it comes to deciding projects to be supported. One of the major transfers announced recently is that the Alvey directorate will run most of the second phase of Project Universe, the SERC's high speed packet switched satellite networking experiment.

SERC's total expenditure last year was £244.1 million, and of that at least £16.4 million was spent on information technology-related research grants. That is up on last year's figure of £10.8 million, and the £8.9 million of the year before.

But Kingman acknowledges that other areas are suffering as a result. "We're not in business to help British industry," he warns, "but to maintain scientific capability in universities and polytechnics. However, there must be close collaboration with industry so that universities address real problems and ask valid questions."

The SERC's latest annual report, issued last week, shows that there is already a high degree of collaboration between the Council and the largest IT companies. Employees of most of these companies, including ICL, GEC, Ferranti, British Telecom, Plessey, Logica and Imperial Software Technology, are liberally sprinkled among the academics on committees which evaluate research proposals.

In addition two committees, the Information Engineering Committee and the Microelectronics Facilities Sub-committee, are chaired by individuals from GEC Hirst Research Centre and British Telecom.

Tom Eggington, SERC director of engineering, which funds most of the IT research, says he expects the Alvey programme will eventually get about half the SERC's IT research cash. The remainder will go to IT projects not directly under Alvey's wing.

At present relations between the SERC and the Alvey directorate are good, says Kingmon, although he acknowledges that there may be difficulties later on if there is any conflict of interest.

"We've made the decision to back Alvey, though, and we'll have to stick by it," he said.

Not enough money for basic university research

Police to get new incident system

by Nuala Moran

A MAJOR incident system, developed to overcome the shortcomings in information handling apparent during the Yorkshire Ripper investigation, was launched last week.

The major incidents computer application (Mica) has been developed over the last year by Microdata, manufacturer of Reality and Sequoia minis, and Bristol software house Isis, in conjunction with the West Yorkshire police force.

Microdata managing director Jerry Causley claimed last week: "Mica is at least two years ahead of any comparable system currently under development in the UK."

Mica has yet to receive the full approval of the Home Office, which has its own project, the major incident room index management (Miriam). This is being developed on Honeywell equipment in Essex.

Using Mica, officers without computing experience can enter statements and then ask the database to correlate information using Microdata's enquiry language, English.

Text retrieval can be on part-words, words, sentences or phrases. Mica can also carry out word association, relating words such as jumper, pullover, sweater. Searches can be made of all stored information at the rate of 100,000 words per minute.

Mica has already been tested on seven murder inquiries in Leicestershire, Nottinghamshire, Derbyshire and West Yorkshire. To West Yorkshire it is being tested in parallel with manual methods.

West Yorkshire asked Microdata to develop the system following the official report on the Ripper inquiry which said the inquiry was hampered by the volume of information, some of which remained unprocessed. The force already had Microdata hardware.

Mica runs on any Microdata mini with one to 128 terminals and can go on site as an incident develops. It can handle between one and 100 incidents at one time, with each incident containing up to 200,000 statements.

Microdata says Mica costs £4,000 a month to run including hardware and software, training, support and documentation. Using a bureau service with four to six terminals 24 hours per day, would cost between £25,000-£30,000 per week.

CAUSLEY . . . "Two years ahead of any comparable system in the UK."

Belfast builds faster chips on existing kit

by Keith Holder

RESEARCHERS at Queens University, Belfast, believe they have cracked the problem of making faster and more dense microcomputer chips using conventional manufacturing techniques.

A tenfold increase in speed has already been achieved with a chip which contains 25% more circuits, but is no bigger than a standard device, said Dr Harold Gamble, one of the development team.

The results have prompted the Science and Engineering Research Council to award a grant for £300,000 to cover further work over three years.

The secret behind the results is the ability to precisely align contact layers during the manufacturing process, which saves space on the silicon – normally used as a "safety margin", and "register" aluminium on the polysilicon links between individual transistors in the chip.

Gamble said that while results had been promising, he did not anticipate any industrial involvement during the next two years.

He believes that when work on the production process has been completed industry will be interested. No new technology is involved and manufacturers would be able to start manufacture the chips quickly.

Applications for the fast chips could include monitoring high-speed industrial processes and faster processing for engineering or scientific tasks, which are possible only using larger machines, said Gamble.

Original work on the project is a result of earlier studies carried out in the department, jointly funded by the university and the Ministry of Defence.

Intelligent terminals a personal challenge

by John Kavanagh

INTELLIGENT terminals are competing more and more with personal computers and even small business systems, and sales by US firms alone will reach $1,800 million next year. Meanwhile the terminal market as a whole is growing by 15% a year and US suppliers' sales will be $7,300 million in 1984.

These points emerge from a report* on the US computer industry by research firm Venture Development.

The strength of the intelligent terminal market is good news for Burroughs, Datapoint, Televideo, Zentec and Raytheon Data Systems, which are listed as the leading suppliers.

Elsewhere the report suggests the leading computer manufacturers will become even more dominant because of terminal sales. IBM, Digital Equipment and Hewlett-Packard are the top suppliers of alphanumeric terminals – and that is by far the biggest section of the market, with over 60% of all terminal revenues. IBM 3270s and compatible terminals alone will have about one-third of the business.

*The US Computer Industry. $1,050 Venture Development Corp, One Washington Street, Wellesley, Massachusetts 02181, US. Tel: (0101) 617 237 5000. Telex 709190.

Advanced PC in UK next year

by Keith Holder

THE advanced version of the IBM Personal Computer, the XT/370, is coming to Britain, but not for another year.

An announcement of UK availability, which follows the US launch of the machine by only a few weeks, said that the XT/370 would be shipped from September 1984, with a price tag of £8,228 for a machine with 10 Mbytes of disc storage.

In addition, there will be a one-time software charge of £919.

European models will be built at IBM's factory at Greenock.

The machine can act as a standard personal computer, a VM/CMS workstation (through a link to an IBM 370 mainframe) and an intelligent two-display terminal, using the same link.

These features are made possible by the development of new processor chips, in partnership with Intel and Motorola, for the mainframe link, virtual storage and communications.

When used as a VM/CMS workstation, the machine can run some System 370 software and has up to four million characters of virtual memory.

New Sperry viewdata kit

by Donald Kennett

SPERRY has launched a new mainframe-based viewdata system. It runs on 1100 Series mainframes, and is designed to enable companies to provide access to their services, or facilities for buying their services, for a wide range of home users.

Sperry previously experimented with viewdata by supporting the marketing efforts of one of its systems houses, Surrey-based Detweiler-Thames, which in 1980 developed a system to run on Sperry V77 minis.

But the latest system, called Sperry Videotex 1100, enables residential users – suitably screened by the security procedures – to access mainframe-based applications without the complications caused by duplicated databases and intermediate machines covered by separate support and maintenance arrangements.

A number of Sperry users throughout Europe were developing trial applications of the system, said UK videotex product manager Richard Whiteman.

US company wins £1 million DVLC contract

by John Riley

US company Scan-Optics has won a £1 million contract to install two optical character recognition systems at the Driving Vehicle Licensing Centre (DVLC), Swansea.

They will be used by the DVLC to process vehicle licence renewal forms, and will be two of the first phases in DVLC's five-year ICL-to-IBM conversion to go live.

According to a DVLC spokesman IBM laser printers, which are to replace the current offline drum printers, may just pip optical character recognition (OCR) systems in going live early next year.

Nevertheless, the order is a feather in Scan-Optic's cap, as the company adopts an increasingly more aggressive stance in the UK.

"The systems were extensively evaluated and we have now won CCTA approval," said newly-appointed UK general manager John Woods. "We're happy to get our foot in the door."

The two 3540 systems will read 130 documents a minute, and will record the car registration numbers and other relevant details on to magnetic tape.

Scan-Optics is currently installing the systems in a £1.5 million deal with Barclays Bank to process sales voucher coupons for the Barclaycard operation. The first phase at Northampton has just been completed, and the second phase, at Middlesbrough, goes live in February.

An additional 10-year maintenance agreement goes with the DVLC order.

DVLC is well on the way to being fully converted by 1987, said the spokesman. The two-year conversion of existing programs, related to the main file record of 60 million documents, has already started, and the mainframe is expected to go live in late 1985.

A pilot scheme, due to begin next year, will integrate input processing.

Scan-Optics was the only company invited to tender for the DVLC contract.

The only other company involved in preliminary discussions could not meet the DVLC's specifications, said the spokesman.

WOODS . . . "Happy."

MICRO NEWS

MOM pips Apple with links to mainframes

by Claire Gooding

ONE step ahead of Apple itself, MOM Aberdeen is linking Apple micro users not just with IBM machines, but to any make of mainframe. MOM Aberdeen has released the Apple version of its all-purpose communications link, Able.

MOM plans to bundle the Able communications link with a Z80 card which can plug into Apple machines. The company is talking to Apple UK on the commercial possibilities of the product and has already been approached by a large French company with a view to packaging the product.

MOM Aberdeen managing director Colin Balchin does not see Apple's recent announcement that it will toe the IBM line as damaging Able's prospects.

"It depends whether Apple users want to talk only to IBM machines. If they want to talk to Univac, DEC, Data General and ICL as well, than Able is a better option."

Interim floppy standard is set

by George Blaek

THE government is set to adopt a new software package as a stopgap measure in its bid to set a micro-floppy disc standard.

While rival drive and media makers vie for a share of the rapidly growing market for compact sub 4-in floppy drives, most standard-setting bodies in Europe and the US are holding back from endorsing any particular format.

But the UK public sector technology buying agency, the Central Computer and Telecommunications Agency (CCTA), is now looking at National Computing Centre software which converts native format code to the ISO international standards it has picked on for the Sony 3½-in drive chosen as a hardware standard two months ago.

The CCTA's Dennis Morley says the package needs about £12,000 worth of funding to lick it into shape with adequate documentation. The agency is considering putting up the money as a "half-way house" in resolving the long-running controversy.

"We will be going to see the main authors of operating systems, including Microsoft and Digital Research, after our working party meeting," said Morley.

"Ideally, we'd like to reach an agreement with them which would avoid this type of conversion. But we're picking up the NCC system as a useful idea we could fall back on if necessary."

The CCTA used Compec at Olympia as a channel for views on the issue, with five stands inviting contributions to the debate. Morley's team is now vetting responses.

In September a public services working party adopted Sony's 3½-in disc as the basis of a proposed new standard.

Morley said he was anxious for a decision to be reached soon because next year sales in microfloppies would rise rapidly in both business and domestic sectors. At present there are three drive sizes in the race, with Sony's 3½-in and Hitachi's 3-in as front-runners.

The Local Authorities Management Services and Computer Committee (Lamsac) is also backing the CCTA initiative, and the Department of Trade and Industry's Focus committee has welcomed the work. It has endorsed the principle of major procurement authorities collaborating to identify single sets of characteristics to meet user requirements, and reckons the action is particularly useful in an environment where the market remains fluid.

But time is running out for a successful bid to derive some sensible consensus from the commercial parties involved. Unless a result is obtained in the next few weeks, it looks as though the outcome could be thrown to market forces to determine, leaving many end-users as confused and frustrated as ever.

EARL . . . "A market in its own right."

Quest opens micro training school

by Caroline Burgeaa

QUEST International is aiming to consolidate its move into the micro market through its own microcomputer training school in Southampton.

"Training is now a market in its own right," said Tony Earl, Quest International managing director. "We looked at the dealer market to see what is now needed and what we could offer — and there is a definite need for training."

The school will offer training on general topics such as evaluating hardware and software and specific courses on business applications.

"There is a lot of education needed," said Earl. "We aim to take away the air of concern people have about computers. It is just as important to tell them what they cannot do as well as what they can."

Last month Quest moved into micro selling, handling kit from ACT and Digital Equipment with peripherals and software through its subsidiary Quest Computer Services. And it is moving strongly into third party maintenance, taking micros to the stable of products it already maintains.

Peter Turton, Quest Computer Service director of operations, says this will bring commercial business to the groups already involved with engineering and maintenance work within Quest.

The micro training school opened this month, and has so far run three courses. The demand has been overwhelming, said Earl, and there are plans to run six courses before next March. A second training centre planned for London should be open before the end of the year.

"Any company dealing in microcomputers must ensure that adequate training is available," said Earl. "We have made considerable resources available and recruited highly skilled lecturers. Everything has been designed to give the first-time user every assistance in operating a microcomputer."

Pixel moves into UK to push its supermicro

by Caroline Burgesa

US MICRO manufacturer Pixel has set up a UK subsidiary in a bid to push sales of its multi-user 68000 based supermicro, first launched in the UK in March.

Based in Cheshire it is responsible for marketing and support throughout the UK and Western Europe of Pixel computers.

"Our aim is to be the major distributor of Unix 68000 machines in the UK," said Jan Klin, Pixel UK managing director. "The Unix-based market is expanding rapidly. In the US it is explosive."

Klin says the reason for the increase is the amount of commercial software now readily available for Unix machines, including the Peachtree range.

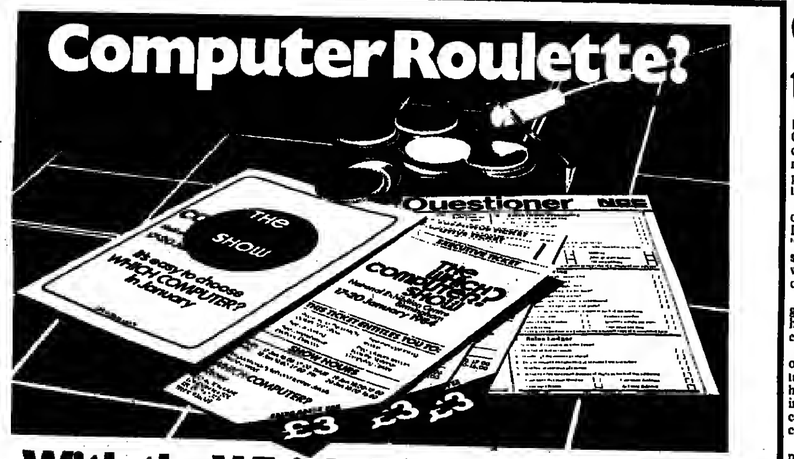
"At the moment we employ eight people, but we aim to increase this by at least one a month," said Klin. "Sales have been excellent without really trying yet.

"We have had 25 OEM deals to date and hope to have about 300 machines installed in the first year," he said. "It sells on price/performance plus the great range of software, and offers 13 languages."

The Pixel 100/AP is a multiprocessor design offering 6 Mbytes main memory and up to 400 Mbytes on Winchester discs. It will support up to 16 terminals and costs £10,000 to £30,000.

Each extra workstation to expand the system costs £510.

KLIN . . . 300 machines installed in first year is the aim.



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THE TECHNOPRENEURS

Tony Davies, Chief Executive, Information Technology Ltd.

Information Technology Ltd (ITL) markets computer based systems for business administration and office automation. It was formed in 1980 when Davies, an electronics graduate, acquired control of Computer Technology Ltd and backed a spin-off from IBM. ITL now operates as a parent company to three wholly-owned subsidiaries – Computer Technology Limited, Office Technology Limited and Network Technology Limited.

In early 1983 ITL decided to raise further capital for expansion and Citicorp Development Capital, together with other investors, helped provide the necessary finance.

Employees 500. Turnover £18 million.

Tim Coldwell, Chief Executive, Xenotron.

Xenotron is the brainchild of its founder, Tim Coldwell, who started the company in 1976. The company designs, develops, manufactures and markets through sales and service subsidiaries in five countries a range of intelligent graphics work stations for the electronic technical publishing (ETP) and graphic arts industries.

In 1981, Xenotron decided to raise further capital for expansion and Citicorp Development Capital provided equity and debt finance and took a 10% stake in the company.

Employees 120. Turnover £5 million.

David Gare, Managing Director, Instem Computer Systems Ltd.

When the US parent decided that this Staffordshire computer systems subsidiary, though successful, did not fit in with its long term development strategy, the management, led by managing director David Gare, decided to bid for the company.

He then approached Citicorp Development Capital, whose swift response and detailed industry knowledge were instrumental in bringing the deal, which involved re-financing as well as buying out, to a successful close. Since then, the company has increased its penetration of UK and overseas markets aided by Citicorp's network of contacts.

Employees 100. Turnover £3 million.

Three uncommon men, with this in common: they are all entrepreneurs who formed or bought their own high technology company, and Citicorp Development Capital (CDC) helped provide the venture capital they needed.

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* We are planning to invest over £100 million in venture capital in Europe in the coming years.

* We look only for a minority equity holding, because we believe that the operating management should be incentivised by substantial equity ownership.

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* Unlike more traditional sources of finance, we are attracted to a business by the management's abilities and its market potential, not purely by financial considerations.

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* CDC's professional staff come from general management, technology, and manufacturing, as well as financial backgrounds. They are therefore able to understand the entrepreneur's business and investment needs, and can contribute continuing assistance and expert advice on the company's development.

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* For particularly large investments, we can assemble and lead a syndicate of investors.

"Senior CDC executives give the impression they are professionals in a rather amateurish market. Their 'modus operandi' is based on the phenomenally successful venture capital offshoot of the mighty Citibank." *Financial Weekly, April 15 1983*

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SOFTWARE FILE

Bureau to raise $1 million in City

AN American computer bureau offering legal services is planning to sell 30% of its shares on the London stock exchange and set up a subsidiary in this country.

Atlis is the offspring of the uranium mining corporation UNC Resources and was set up to help in its bug-running lawsuit against Gulf Oil. The bureau uses IBM's Stairs software running on a 4341 mainframe in Connecticut to search the records of a legal opponent once a court has given an order for them to be made available.

Atlis has 30 big companies among its US clients. Others, including Control Data and Informatics, offer similar services, but in Europe this field has yet to be opened up.

Chief executive John Aseltine said they intended to raise $1 million of working capital from the placing of shares, with 40% retained by Atlis and 30% by its parent. The new subsidiary would be established in London within the next year under British management.

Going to the London stock exchange instead of New York would give them substance when talking to British clients and enable them to get an earlier footing in the European market, argued Aseltine.

CCTA man doubts Unix value

EXPECTATIONS of the Unix operating system were damped down by a government official last week.

Jeff Webb, of the Treasury's Central Computer and Telecommunications Agency (CCTA), told a meeting in London he was "less than convinced" that Unix would achieve the dominance predicted for it.

He was speaking at the first proprietary software show for BOS products presented by their author, MPSL.

Afterwards he said that public systems would need high user-friendliness, which Unix lacked, and that Unix consumed such a large amount of resources that the cost-conscious British government might be deterred.

"I don't want to give the impression that Unix won't be important. But to take a substantial share of the market it needs someone to come up with another shell and more multi-user facilities."

The CCTA, which will next year be the country's biggest micro purchaser, was already spending a third of its operating systems budget on multi-user programs, he told the 500 guests at the show.

Social Security, which would be buying 3,000 machines for its local office management project, would have to choose an operating system early next year which would be single-user but multi-tasking and would support Level II Cobol.

"Many users may well decide that MS-DOS or Concurrent CP/M are perfectly adequate for their needs," said Webb.

MPSL managing director Alistair Jacks warned that confidence in the software industry could be undermined by what he called "the terrifying scramble for volume".

Companies had to make and sell more and more to gain the same revenue as prices of both machines and programs continued to decline, he said. There would be an inevitable public reaction against this scramble.

MPSL plans to set up 30 micro service centres in the UK, to be followed by others abroad to try to close the knowledge gap and set thousands of small firms on the right track, Jacks said.

JACKS . . . "Terrifying scramble for volume."

MPSL would achieve a turnover of $6 million in 1985, less than five years after setting up in business – but that figure could have been as high as $10 million but for the "unreasonable exchange rate", he added.

Introducing the show, Tycom chairman and Euro-MP Sir Jack Stewart-Clark had spoken of "enormous opportunities" for UK software exporters in the US and Japan – provided they were prepared to put as much effort into marketing as they did into creating the goods.

MPSL launched two new modules at the show – a financial modelling system and a micro-mainframe link.

Database boost for the Vax

THE Vax mini is getting a new database along with the transaction processing system, Vax-11 ACMS, launched by DEC. The ACMS application control and management system is aimed at environments where large numbers of users have to share the same files and data.

Combined with the Vax-11 database system, ACMS comes close to providing a total information system, an area where DEC has lagged behind IBM and compatible manufacturers.

Lex to run on PC

LEX, the word processing package developed by Filetab author Tom Barnard, has been converted to run on the IBM-PC. Barnard, now managing director of Arc Microsystems, said DEC has bought 1,000 copies of Lex to sell on its Professional micro in the US.

Delta link-up

LOTUS 1-2-3, the fast-selling micro spreadsheet, is to be linked to Compsoft's Delta database, allowing users to pass data to and fro. The developers say that demand for the interface has come from IBM-PC users. Delta has already been hitched to Micropro's Wordstar and will soon also be compatible with another popular word processing system, Peachtree's Peachtext.

Condor rewrite

THE relational database Condor is to be rewritten in C, the native language of the Unix operating system. The rewrite will make Condor, one of the more powerful data management and application tools, portable across all machines now running Unix. The package is being linked with spreadsheets such as Lotus 1-2-3.

Range grows

TYCOM, maker of the British Microframe machine, has added the UCSD p-system to its software range through a deal with Basingstoke distributor Apply. Users can now have CP/M, MS-DOS, Xenix, Bos and p-system simultaneously on Winchester disc.

Programs to rent

WILTSHIRE software house Parwest is going into a new line of business, software rentals. The Chippenham firm aims to rent programs from 6,000 outlets in a drive it is calling "The Enterprise System". Managing director Keith Park says the idea could reduce the risk for businessmen of an expensive mistake.

Training deal

DISTRIBUTOR Vector International has sold $220,000 worth of micro training software to Rank Xerox. The programs developed by Microcal are to assist new users of MS-DOS2, CP/M Plus, dBase II, Multiplan and Basic. The total sales comprise 60,000 units.

Lookalike offer

SAGE micro distributor TDI of Bristol is offering the Unix look-like operating system Idris, written by Bill Plaugher, president of Whitesmiths and formerly one of the Unix development team at Bell Labs.

FRASER . . . "We're taking the IBM open door policy."

Microsoft promises windows

VISICORP last week released its heavily-previewed environment VisiOn, and rival Microsoft retaliated with a promise of its own windowing system next April.

A year ago VisiCorp announced that it would introduce a desk-top simulation suite that would allow users to switch easily from one application to another. The technique was pioneered by Xerox with its Smalltalk environment and taken up by Apple for the controversial 68000-chip Lisa.

Like the Apple, VisiCorp's system works by the use of a mouse hand-held pointing device, moving the screen cursor. VisiOn is to be distributed in the UK by Rapid Recall's subsidiary in High Wycombe, Rapid Terminals.

Its dealer manager Richard Packham expects a large number of package writers to support the new environment. Informatics has been working with VisiCorp for the past 18 months on a mainframe-micro link, to download data through its Answer/DB program to the IBM-PC running under PC-DOS. Applied Data Research has also come in the aid of VisiOn, with five products to be interfaced to it by early 1984.

The two firms have an agreement for ADR to become a "value added remarketer" of VisiOn.

Packham said he thought Microsoft's response would be "a different animal for a different job". The key to VisiOn was not its windowing, but the ease with which data could be shifted about, he said.

"It's one thing to outline a strategy, another to deliver a working product."

But Microsoft says it already has 25 micro makers and five major software houses behind it, including Peachtree, Lotus, Software Arts and Ashton Tate.

Microsoft Windows is to be an extension to the MS-DOS2 operating system to make it easier for the user to integrate his application.

"It's not like Lisa, because the use of icons is more subtle," said a spokesman. "We have a lot of support already just because MS-DOS has proved so popular."

And UK general manager David Fraser said: "We're taking the IBM open door policy towards applications software now. We are working with Lotus for instance, even though it has a rival application to ours. Because of this we think many of the program developers will prefer us to VisiOn."

Meanwhile the industry awaits the Monarch environment, rumoured to be under development by CP/M originator Digital Research. This is said to include a low-priced windowing device to be called VIP (Visual Information Processor).

CACI comes up with a problem solver

by Claire Gooding

DATABASE consultancy CACI is moving into software products with a development tool which has grown out of its analytical expertise. The System Factory puts into practice the data analysis techniques which have made CACI well known, incorporating them into a software product which concentrates on the design as much as on the production of code.

"The trouble with generators is that all they do is allow you to generate your errors more quickly," said Athar Shareef, vice-president of the CACI business systems division. "While most products do help with code productivity, they are not really addressing the problem. We identify key areas as being correctness and completeness of the analysis."

The System Factory is a problem solver as well as a code generator and productivity aid. It comes close to being an expert system since it works along a set of analytical rules, interpreting them according to the user's own data and input on the particular problem to be solved. It grew from CACI's Adam System design methodology.

There are three major components, the analyst's workbench, the designer's workbench, and the applications generator. The data built up in the first section goes into a model which describes what the business does and how.

The designer's workbench generates system tables dealing with the installation and its hardware and software configuration.

The final system is claimed to produce bug-free code.

If the software sold by CACI manages to change the direction of code production in large shops, it could mean the end of the traditional analyst/programmer role.

The first mainframe on the System Factory works on IBM kit running CICS and VSAM and has an entry price of £20,000. It generates code in Cobol.

The mini version generates code in Bsslc and is available on MAI Basic Four minicomputers for about £12,000.

CAD bureau follows Europe line

by Keith Holder

A NORTHAMPTONSHIRE firm has entered the computer-aided design (CAD) bureau market, using a formula which has been operating successfully in Europe for six years.

R & H Systems of Wellingborough is offering contract design and draughting, using its Auto-Trol system, for companies with engineering, construction and manufacturing applications. This can be done either by in-house staff or by a member of the client company who would be trained to use the system.

For companies too far from the the bureau or waiting to carry out designs on their own premises, R & H will lease a terminal connected by modem link.

"There is a potential market for this service with companies which need the performance we can offer but cannot afford a machine," said managing director Hans Geluk.

He said the bureau needed only between four and six clients to be in profit, and he thought local industry was already sufficiently interested to meet this.

"We have built up the bureau around a specialist team who have experience of a wide variety of systems and applications," said John Spencer, who runs the bureau.

The company is responsible for all servicing and maintenance of Auto-Trol equipment in the UK.

The Auto-Trol system, manufactured in the US by Auto-Trol Technology, is a 32-bit machine developed for engineering design and used in areas as diverse as pipeline design and preparation of car maintenance manuals.

The company is also taking on new distributorships to fill gaps in its CAD range left by the loss of contracts with Vector General and Genisco earlier this year. These include colour graphics systems from Control Graphics and CAD systems from Interactive Machines.

Hungarian programs impress Scicon boss

A SOFTWARE tool developed in Hungary to measure the productivity of programming methods is being studied by BP systems subsidiary Scicon.

The product was developed by the Hungarian Institute Sci-L, which has recently sent a marketing team to this country to promote several of its inventions.

Scicon project manager Dave Youll, who saw a demonstration of the method of calculating productivity of different types of software engineering, reported that he was impressed.

The Hungarian programs run on either DEC Vax superminis or IBM mainframes. Scicon sees it as an aid to in-house projects, particularly in assessing ways of approaching fixed price contracts.

Sci-L is looking for distributors, but Scicon would prefer to use the method itself before considering adopting it for sale.

Scicon software development manager Winston Muktersingh commented: "A lot of acts of faith are being committed in software engineering without any way of measuring productivity. No matter how much proselytising we do for software, it won't be adopted by the hard-nosed businessman unless we can show that it really will show an economic improvement."

Software File is compiled by George Black

When you've talked to the other company, talk to Digital Research and talk yourself out of the language problem you just talked yourself into.

Digital Research offers the broadest range of high performance programming languages and programmer productivity tools for microcomputer software development. And makes them source code compatible across all major personal computer operating environments: single-user, concurrent, multi-user and networked CP/M, IBM's Personal Computer DOS and Microsoft's MS-DOS.

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CIS COBOL, the Compact, Interactive, Standard implementation, has become the most widely favoured Cobol overall because of its powerful data processing functions.

For micro-to-mainframe development, *Level II COBOL* features native code generators for faster execution and *ANIMATOR* logic display for debugging at source code level.

For highly advanced, commercial, scientific and systems level program development, *PL/I* is the state-of-the-art Digital Research implementation that combines the block structures of ALGOL, the string handling of COBOL and the numeric functions of FORTRAN.

And recently released *DR FORTRAN 77*, a high performance Digital Research full ANSI 77 implementation.

And for fast, powerful, elegant systems implementations, Digital Research's new *C Compiler*, a feature-packed enhancement of C supported by a run-time library that handles everything from transcendental functions to input-output. An integrated answer to all your programming needs. And, like all Digital Research languages, source code compatible across a complete range of microprocessors and operating system environments.

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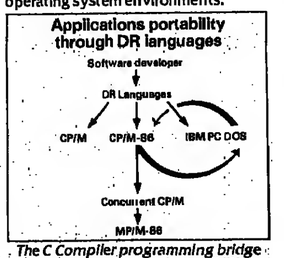

The C Compiler programming bridge extends, additionally, to UNIX

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Also available from Digital Research is a code compatible 'toolbox' of programmer productivity aids that are as precisely engineered as the languages themselves.

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COMPANY NEWS

Ma Bell orphans get a Wall Street welcome

IN a historic trading session last week, Wall Street had its first chance to give a verdict on the divestiture of the world's biggest corporation, American Telephone & Telegraph, when trading began in 1.5 billion new shares.

New York Stock Exchange officials said the listing represented the largest one-day issue of shares in its history.

The new AT&T opened at $19, at the high end of market predictions. Bell Atlantic, which incorporates the former New Jersey Bell, Bell Pennsylvania, and other East Coast companies, proved the favourite orphan, gaining $4¼ on an opening price of $65¾. Shares in the old AT&T were busy, up ¾ on the opening price (see table).

The beginning of the end of AT&T, the $152 billion Ma Bell, which is breaking itself up to comply with a US government anti-trust settlement, was heralded when the company filed a 267-page prospectus. This described how it intended to handle the split with the US Securities and Exchange Commission. Brokers had a weekend to digest the tome.

The detailed projections contained in the prospectus are close to Wall Street's best guesses. All but one of the companies have predicted a fall in turnover in 1984. Parent AT&T is forecasting 1984 profits of $2.1 billion on turnover of $56.5 billion. But if the break-up had happened already the company says that revenue to June 30 would be $67 billion. For the seven regional companies combined profits are expected to be $6.5 billion.

But there are discrepancies, and Pacific Telesis has been fingered as a blatant culprit. It is forecasting a return on equity of almost 14% next year, and analysts are frankly sceptical.

Similarly there is suspicion about forecasts made by the new AT&T, which includes Western Electric. Analysts say that it cannot but lose market share.

Paradoxically, shares in the unfancied Pacific Telesis may fall low enough for it to be recommended as a "buy", while Bell South, for example, which promises handsome profits, may end up as a "sell" if its price settles too high.

It is this tariff issue which casts a real shadow over both the prospectus forecasts and the initial share valuations, specifically because of the failure of the Federal Communications Commission to define a new pricing structure.

AT&T and its orphans have done sums on the basis that a new flat rate monthly access charge will be in place this spring. If it is not, the forecasts will not hold.

These access charges are supposed to replace a historical subsidy of local telephone services by long distance toll traffic, while allowing AT&T to lower long distance charges.

HOW THE NEW AT&T LOOKS

Company	Revenue ($ billion)	Earnings/net ($ billion)	Share ($)	Opening price
Old AT&T	–	–	–	62.75
New AT&T	56.5	2.1	2.02	19.00
Ameritech	8.3	0.9	9.47	63.00
Bell Atlantic	8.3	0.9	9.69	65.75
Bell South	9.8	1.2	12.21	89.00
Nynex	9.8	0.9	9.54	60.50
Pacific Telesis	8.1	0.8	8.0	51.50
Southwestern Bell	7.7	0.8	8.93	62.00
US West	7.4	0.8	8.96	56.00

But the FCC is under pressure from Washington to keep local charges down in the run-up to the presidential election. The House of Representatives has already approved legislation to exempt private users from long distance access charges.

Official independence day is January 1, 1984. But dealings will be on a "when issued" basis, where stock is authorised but not yet issued, ahead of actual share distribution, until February 16. On that date some 3.2 million shareholders will receive one share in each of the new companies, and ten shares in the new AT&T for each 10 they hold at the moment. Cash cannot be delivered for shares traded until February 24.

The fear in Wall Street is that although price ratings of around nine times projected earnings compare with current US utility valuations, the orphans will not live up to their own promises when the AT&T umbrella is removed.

The mechanics of the divestiture, and for that matter the confusion on stock markets and among shareholders alike, are not dissimilar to the anticipated privatisation of British Telecom.

The New York Stock Exchange predicts that its daily trading volumes will be up by 15 million shares, or 15%, with the advent of the new AT&T and associated stock. But it will not be complaining. The initial listing fees bring it a cool $2.2 billion in revenues.

Of direct consequence to UK shareholders is the announcement that they will not face a tax liability as a result of the break-up. And Prudential Insurance is offering $150 million of Eurobonds which carry warrants entitling holders to buy new AT&T shares.

GEISLER . . . Inundated with approaches from potential investors.

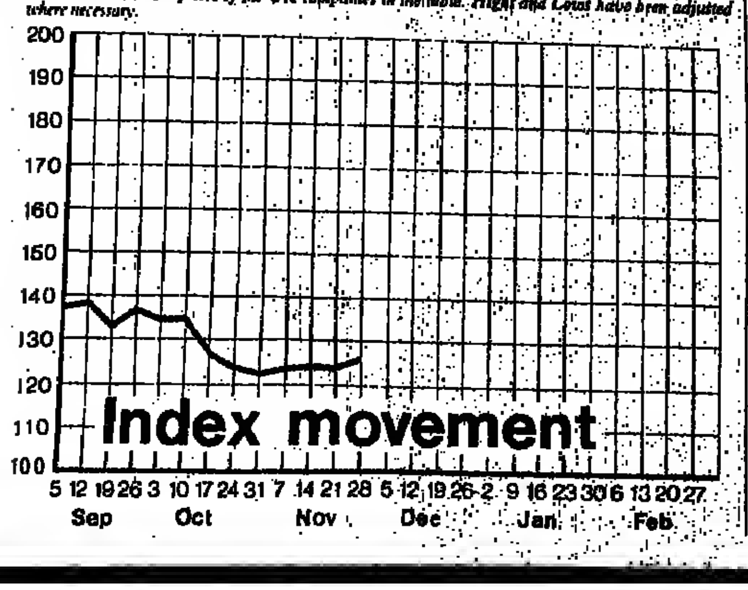
SHARES TABLE

The shares table, which is specially compiled for Computer Weekly, shows selected computer companies that reflect the state of the computer industry.

Date 25/11/83 Index 125.86 Change +2.15

Pence 1983 High	Pence 1983 Low	London Stock Exchange Stock	Pence Price	C'nge	$ 1983 High	$ 1983 Low	US Stock	$ Price	C'nge
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

The table shows the closing prices in London on Friday and in America on Wednesday. The Share Index is based on the prices of the UK companies in this table. Highs and lows have been adjusted where necessary.



Zita bounces back

by Philip Hunter and John Riley

THE Zita portable microcomputer, which was manufactured by the now defunct Information and Technology Computer Services as part of its Andromeda Series, has bounced back on to the market.

Manufacture of the Zita micro is organised by Zita Microsystems, a new company based in Staines at the same address as ITCS Ltd, the former sister company of Information and Technology Computer Services. The latter is currently undergoing liquidation, having amassed several hundred thousand pounds of debts.

David Lewis-Pryce, a consultant to Zita Microsystems, and managing director of ITCS, says that Information and Technology Computer Services, which he headed, is not to be confused with the latter – a distinction not appreciated by many of the creditors.

Despite substantial backing earlier this year and a major Saudi Arabian order, fewer than 200 machines were manufactured by Information and Technology Computer Services, and the company is now being wound up.

Lewis-Pryce said recently that ITCS would market the Zita micros, and that Zita Microsystems will be responsible mainly for quality control and some of the marketing.

He claims that two foreign institutional backers, one from Switzerland, the other from Germany, have put up £100,000.

It has been reported that pre-production models are being built by sub-contractors Ash Row of Farnborough, and that Ferranti is currently manufacturing the systems' boards.

Lewis-Pryce added that Metal Closures in Skelmersdale is involved in the manufacture.

£1m for Unix house

SPHINX, the Unix systems house distributor set up just six months ago, has landed a further £1 million of venture capital.

The money has come from Sphinx's two original investors, Abingworth and Alan Patricof Associates, and the Olivetti venture capital fund.

This is said to be Olivetti's first venture investment in Europe, outside Italy, although the company has an impressive involvement in US high-technology companies.

The investors have not revealed precise details of the deal, but APA's Peter Englander, a non-executive director at Sphinx, indicated that Olivetti was "by far the largest investor this time", and that the three investors now have "not dissimilar holdings".

Both APA and Abingworth put up £200,000 first time round.

Sphinx was started by former Zilog European marketing manager Dr Pamela Geisler. She said this round of finance had come earlier than anticipated because Sphinx had been inundated with approaches from potential investors, and this interest had persuaded her to force the pace.

"We have had to think of new ideas and to drive the company more aggressively – harder, faster, bigger, earlier", she commented.

So Sphinx has gone beyond its original plans. It is now doing Unix implementations on DEC kit, using Unity from Canada's Human Computing Resources, as well as Unix application work. It now has about 30 staff.

According to Englander, Sphinx is still on target to become a public company inside three to five years – at which point APA and its fellow investors should get their money back.

Dataserv set for full listing

DATASERV, the Minneapolis broker and lessor, is set to follow United Leasing and Atlantic Computers to a full Stock Exchange listing. It hopes to raise £7 million in an offer for sale by tender next month.

Leasing makes up 56% of the company's current turnover – $50 million in the six months to June 1983 and broking another 32%. Dataserv has its UK base in Windsor after acquisition of Premier Computers.

BALDWIN . . . Expecting a record.

HP's many happy returns

HEWLETT-PACKARD which, with Wang, has stormed through the recession, has reported profits up 13% at $432 million on sales up 12% at $4.710 billion for the year ended October 31. The fourth quarter saw profit up 32% at $147 million, and sales up 18% at $1.330 billion – the highest return for any quarter in the company's history.

Orders for the year were up 18%, but the company warns that international orders are not as good as they might be.

President and chief executive John Young said: "We rely on international markets for a significant portion of our business. We remain cautious as we move into 1984."

But David Baldwin, UK managing director said: "I expect record results for our British operations for fiscal 1983."

A yen for IC packages

JAPAN'S leading ceramic integrated circuit maker, Kyocera, which has a hand in NEC, Tandy, Sord and Olivetti portable micros, had half-time pre-tax profits up 46% at Y24.1 billion ($102 million), on sales up 64%.

Sales of IC packages went up by 9% – they now account for 36.5% of the whole.

Ericsson is buoyant

SWEDISH telecommunications group L. M. Ericsson has reported pre-tax profits up 32% at $113 million on turnover ahead 31% at $2.06 billion for the first nine months of 1983. Its Facit acquisition was responsible for 9% of the advance in sales.

Ericsson's business now splits: Public telecommunications 32%, against 36% in the same period last year; Information systems 29% (23%). Cable sales fell from 18% to 16% and defence sales from 8% to 6%.

Wong goes public

WONG'S Industrial (Holdings), the Hong Kong electronics manufacturer which makes printed circuit boards for Atari, and has recently done a deal with Acorn to build electrons for the US market, is to go public. It is to offer 75 million shares around 25% of its equity, at HK$82.4. This values the company at KH$705 million, and puts it on a prospective p/e of 7.

Prism for USM

SEEMS that we can add Prism, which is developing the modems to link home computers to Micronet, to the list of pretenders to a quote on the USM. The plan is to place 10% of the company privately next spring, then the USM by 1985.

COMPANY NEWS

Atlantic in £15 million agreed bid for Lion

ATLANTIC Computers has made an agreed bid for Lion Systems Developments of Stokenchurch, Bucks, in a deal worth almost £15 million.

Atlantic was launched on the London Stock Exchange just two months ago, so has wasted no time in using its new equity muscle.

Lion, a privately-owned data communications company, was founded in 1967, and its range now consists of networking products, including modules for control of data and analogue interfaces, and baseband, speechband and shorthaul modems.

Lion also sells data comms network control systems such as Incsd II, Integrated Network Control and Diagnostic System.

According to Atlantic's chairman and chief executive officer, John Foulston, Atlantic will give Lion a blue chip base of some 340 installations, while Lion offers the lessor a chance to move into the data comms market.

Atlantic intends to offer technical consultancy and leasing services on Lion equipment, although it is looking at other manufacturers' kit too.

Lion directors have already agreed to the deal, which should be ratified at an extraordinary general meeting by Atlantic shareholders on December 22.

Atlantic has offered Lion 2.4 million of its own shares, which works out at 9% of the company's extended share capital worth around £9.8 million last week. In addition, Atlantic is providing £4.1 million of 1% loan notes, redeemable in 1984 and 1985, and will pay £1 million cash when the deal is complete. So the deal is worth £14.8 million on the basis of a middle price of Atlantic shares.

FOULSTON . . . "It takes us into a different league. Lion is quite a big company."

For the year ended February 1983, Lion had profits of £1.28 million, and £1.37 million in the seven months to September 1983. It has promised profits of not less than £1.65 million on turnover of £5.2 million for the ten months to December 31.

Atlantic is sticking by its prospectus forecast of £5.1 million profit before tax in fiscal 1983.

The City thinks Atlantic has got itself a bargain. The company's share price leapt 33 pence on the news to stand at 415 pence, almost double the 230 pence tender price struck when it came to market.

Foulston commented: "I think we purchased the company at reasonable cost. It takes us into a different league, as Lion is quite a big company."

And Atlantic is unlikely to be satisfied with this one acquisition. Foulston pointed to a declaration in the company's prospectus, headed "The Future", which says: "The directors intend to broaden the range of services and products offered to Atlantic customers." So Foulston will spend again – wherever he sees a gap in the market and the price is right.

First-product firm seeks £700,000 'over-the-counter'

MICROMITE Computers of Southampton is just 15 months old, and has yet to make a profit. But the company is set to raise public money.

Micromite is placing some 2.9 million shares at 25 pence each on the London Over-The-Counter market through licensed OTC dealer Harvard Securities.

Micromite expects to raise about £700,000 from the issue, which values the company at £3.5 million and puts it on a price/earnings multiple of 12 at the placing price.

Micromite builds a device called Fileserver. This is an integrated Winchester disc and tape streamer system which can be connected to CP/M-based micros via a daisy chain local area network. Sales director Mike Webb baulks at the suggestion that Micromite is a one product company.

"We are a first-product company," he argued, adding that the company hopes to have an interface card for the IBM Personal Computer to take to Comdex in Las Vegas this week.

Micromite is developing Fileserver for both 8088- and 8086-based machines and it will be able to support MS/DOS by the spring of 1984.

Like many young companies, Micromite's financial history does not make pretty reading. To August 31, 1983 it made a loss of £262,000, on turnover of £100,000, but is forecasting pre-tax profits of £680,000 for fiscal 1984.

The company is not at all embarrassed about looking for public investment so early in its career. The company says it needs the cash for a ground plan which includes opening a new R&D facility in Southampton, and a sales office in Amsterdam.

Of the OTC route, Webb commented: "The OTC is modern and popular, and it leaves us totally in charge of the company."

Another spokesman added: "It is quick, cheap and easy" – which may be more to the point.

Micromite is not an investment for the faint-hearted – as the risk clause in the prospectus acknowledges. The one obvious attraction in having a flutter is that subscribers to the shares qualify for tax relief under the government's Business Expansion Scheme.

The rub is that shares must be held for five years before investors qualify for full rate relief – and five years is an eternity in Micromite's business.

And talking of need for funds . . .

A MANAGEMENT buy-out based in Virginia may not seem to have much in common with Micromite, but Atlis Systems is now traded OTC here – and has never made a profit either.

Afcor Investments has placed 900,000 Atlis shares at £1.09 each, some 30% of the company's equity, putting it on a prospective price-earnings multiple of 20.

Atlis was born in May in a buy-out from United Nuclear Resources, which still has a 30% interest in the company. Net loss for the six months to June 30, 1983 was $60,000 on turnover of $870,000. The company is making a tentative forecast of $400,000 profits in the year to June 30, 1984.

Atlis specialises in storage and retrieval services for lawyers – Atlis stands for automated litigation support – running on IBM 4341 hardware. The system was developed for internal use.

Atlis will be encouraged by the OTC performance of Memcom International Holdings, an electronic filing systems specialist which failed to get on the Unlisted Securities Market. Its shares were offered at 81 pence by Afcor Investments. They now stand at 105 pence.

Innovation centre seeks DP firms

by Philip Hunter

COMPUTER companies often complain that the right finance for development of innovative products is hard to come by. Why, then, is there not a single computer company among the 50 founder members of the Centre for Innovation in Industry?

John Goddard, one of the Centre's four founder directors, is surprised by the lack of interest shown when he invited some computer firms to join the founder members earlier this year.

But now Centre has been lent money by two of its members and is looking for new recruits.

"We hope computer companies will join," says Goddard. "We are the only people who are set up to provide all the services for innovation."

These services include help in turning ideas into commercial products, and in finding finance.

"We help with the difficulty investors have in presenting to banks a total concept," said Goddard.

Although there are no computer makers or software firms among the 50 members, there are computer users including ICI and Blue Circle, and many organisations that invest in the industry.

Membership costs £600 a year for companies with over £10 million turnover, £300 if turnover is between £1 million and £10 million, or £150 if turnover is under £1 million.

Company News is compiled by Dave Madden

£600,000 injection for Symbiotic

SYMBIOTIC Computer Systems, set up 18 months ago in a Croydon photocopy shop with £38,000 from ICFC, has picked up a further £600,000 from the fund – £300,000 for a 15% stake in the company and £300,000 as a high interest loan.

The company builds SyMBnet, a fibre optic cable network for microcomputers, and a 5¼in Winchester hard disc system called SyMBfile.

It now has 30 employees, is growing at 30% per month, and expects turnover of £1 million this year. The company has already opened offices in the US and Benelux.

Takeover of micro maker

EDENSPRING Investment shareholders have approved the acquisition of micro maker Oric from British Car Auctions, and 98% of the shares were voted in favour of the deal, despite the fact that Edenspring's shares must now be downgraded to the Over-the-Counter market.

The company loses its Stock Exchange listing because Oric will be the dominant partner in the new group, and it has not been around long enough to qualify for a quote.

Zygal profit up 300%

USM quoted Zygal Dynamics has announced interim financial results. Net profit was up 300% at £161,000, on turnover up 58% at £2.15 million. Chairman Con Driscoll explained that both printers and terminals, Zygal's traditional business, and the service arm Zygal Services had shown considerable improvement.

Modular Technology, which sells modems in UK and Germany, and the new Business Systems Group, are currently profitable, and will show a profit for the full year.

Comtech cuts its losses

COMBINED Technologies Corp, the company formed out of Tricentrol's non-oil interests in 1980, has reported a second quarter loss cut from £967,000 to £751,000 on turnover up 16% at £57.9 million. In the half-year to September 30 Comtech's loss was down from £1.4 million to £1.1 million. Turnover was up 9% at £109.5 million.

Comtech holds 63% of USM counter Mnemos, which is trying to sell the System 6000 information storage and retrieval system. Mnemos took a loss of £2.4 million, against £2.03 million last time, on sales of just £13,000. Mnemos says it has four evaluation contracts.

Cullinet boost

CULLINET, the US software house, has reported second quarter net profits up 45% at $3.7 million on turnover ahead 53% at $28.7 million. Half-time figures were: profits up 50% at $7.4 million on turnover up 56% at $53.5 million.

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ADM-5	549
ADM-11	575
ADM-21	629
ADM-22	599
ADM-23	599
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ADM-32	989
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ADM-36I	1095
ADM-42	1695

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DP-9625A	1190
WP-6000	1995
DP-6500	2215
CONTROL DATA	
CDC 9334P	959
CDC 9334S	995
EPSON	
RX80	279
RX80 F/T	319
FX80	438
FX100	669
MX80 F/T III	389
MX100 III	475
LEAR SIEGLER	
Versaprint 500	1349
Versaprint 510	1395
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PROFILE

Man at the heart of satellite boom

BILL PERIGARD is at the very heart of the rapidly expanding satellite communications industry. As the recently appointed president of Comsat Technology Products he heads the giant Communication Satellite Corporation's (Comsat) manufacturing business and will oversee the massive increase in data communications by satellite going ahead soon.

"At present, a very high percentage of communications over satellites is primary voice traffic," he says, "but I do feel now that data communications are at last coming over the horizon, even though a number of companies have gone broke in the US waiting for them."

"The main areas to be sorted out are signal processing, protocols and error correction," he adds. "Getting chunks of error-free data across is a problem at present: we can suffice with a 64 Kbits transmission rate now, but for big data pushes we need to transmit on a larger bandwidth to optimise data communications and make better use of satellites.

"Satellites are about transparency," he says. "You've got to do the handshaking before releasing data for transmission."

Perigard is well-placed to overcome these problems. Comsat runs virtually all international satellite communications to and from the US, is the US participant to the international Intelsat and Inmarsat satellite networks, and owns Comstar, the US satellite system for domestic communications.

Comsat Technology Products comprises three companies: Compact Software, which produces programs for microwave circuit engineering CAD; Amplica, which designs microwave amplification systems; and Telesystems, which manufactures digital signal processing equipment for telecommunications.

Perigard gives a conservative estimate of two years for the widespread introduction of data traffic on satellite systems. "We think we know the answers in concept and are getting them to work in the test beds – but we've seen too many things that work in laboratories but not in the real world."

Among its many enterprises, is a third share in Satellite Business

by John Riley

Systems, the all-digital communications service set up in 1975 and operated via three satellites owned by the company. The other two participants are IBM and the US insurance giant Aetna Life and Casualty.

The company is still getting off the ground, and although revenue last year increased to $39 million, its net losses were $122 million.

"SBS is very much going to plan," said Perigard, "it is ahead of schedule in every area for 1983, and we are more interested in the business becoming successful and being on the right track than worrying about quarter by quarter profitability."

He explains the difference between IBM's role and that of Comsat: "IBM does a lot of data manipulation whereas we are concerned with the transmission of data over satellites, especially with the analytical concepts of transmission and signal processing on the ground."

Perigard does give the question of satellite vulnerability some thought: "I do worry about vulnerability of satellites, so we have to be prepared for ways of protecting them – we are researching in that area."

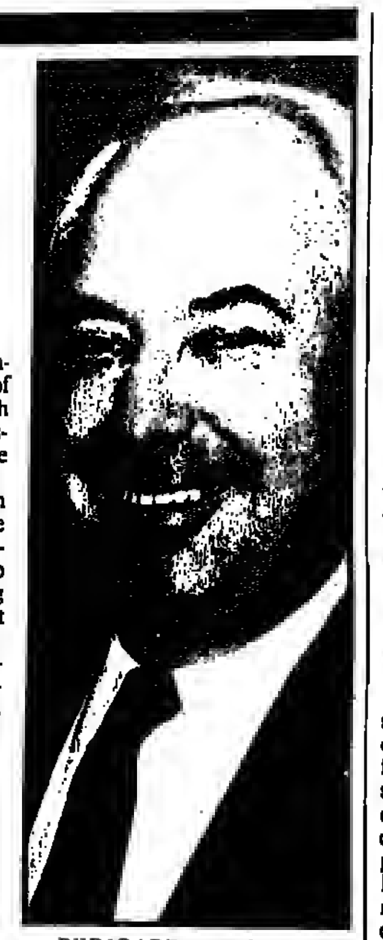
"I compare satellite vulnerability with fibre optic cable vulnerability," he goes on. "If either is damaged then there is a major problem which results in resorting of huge chunks of traffic, although I agree that you'd have to damage a lot of cable links to get one satellite equivalent.

"Essentially, however, with or without the security question we all need media. Each has strong points in fulfilling different communications requirements," he added.

"For example, fibre optic cables are great point-to-point bulk carriers. It would be foolhardy to rely on one method to the demise of the others."

Perigard shares Comsat's concern about the Orion proposal, to set up a rival international public satellite service.

"That's the classic case of cream skimming," he said. "It does not propose to take the risk in serving the lower, regional traffic systems. As far as we know in Comsat, it would violate the 1963 Communications Act as well as Intelsat's regulations."



PERIGARD . . . "Over the horizon."

Perigard, who was the Fairchild Space and Electronics Company's director of operations before joining Comsat in 1978, sees plenty of spin-off from the satellite communications programmes.

"The basic fundamental techniques can be applied to terrestial transmission media," he says.

"For transmitting to satellites we are working on receiving data at 1½ Mbits and reformatting it and transmitting it in 54 Mbit bursts. The technology involved has applications in terrestial local area networks based on fibre optic cables."

DOWNTIME

A touch of hypocrisy?

IBM's righteous indignation at the Hitachi theft of its secrets is tempered by its readiness to make a fast buck. Company spokespersons have long decried the underhandedness of the Nips in nicking its most wonderful ideas and flogging them to IBM customers.

And one of those corporate mouthpieces is now asking any users who happen to have any software which might have fallen off the back of a lorry to get in touch immediately.

But errant users should not fear a visit from the boys in blue (the police that is), rather a visit from the boys in blue (IBM salesmen). Speaking from the US, the IBM spokesman told a stunned world:

"We're more than prepared to sell these users the manuals to go with the stolen software."

When times are hard

INDUSTRIAL relations at Plessey's Liverpool plant have never been better, according to a company spokesman at last month's interim results press conference.

Asked for further details, he pointed out that, in the past, it has been known for chairmen, managing directors *et al* to be booed along the length of the production line (one of the longest in Europe).

But chairman Sir John Clark is apparently so beloved of his Liverpudlian subjects that he can walk among them unscathed, and can do so without bulletproof glass in his Plesseymobile.

Of course, it might not be Clark's devastating charm which has brought about this marked improvement. It could have something to do with the fact that Plessey is almost the only employer left on Merseyside.

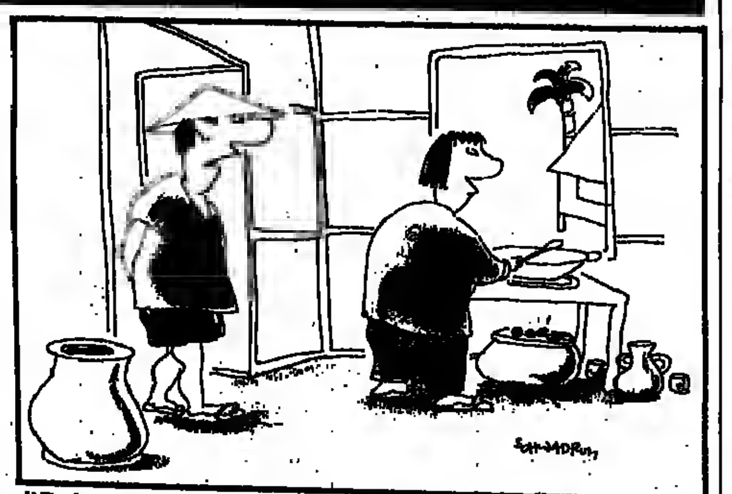
And it really doesn't work!

OLD Charlie Babbage's dream of building a mechanical computer has finally come true, 150 years after his design for the analytical engine was shelved due to production problems. (Not at the Timex plant).

And it comes with the remarkable price tag of £1.29. Let me quote from the catalogue:

"Clockwork Computer. No mains – no batteries! This revolutionary new miniature computer works by clockwork only. (It doesn't really work, but the moving "data" on the screen looks very realistic – and the fact that it's quite incomprehensible adds to the realism!)"

All this in a package just 2in. x 1½in. Order yours now.



"Bod news I'm afraid, Ai-Lin. I've been reploced by an Abacus."

Holier than thou

LEADING the jet-setting life that is my unhappy lot, I tend to bump into quite a few high-powered executives from the wonderful world of computers. Only the other day, a VIP from Nixdorf was telling me of a foolproof way of stealing towels from hotel rooms without getting caught.

Far be it from me to relate the details of this pernicious practice to you, gentle reader, but the Nixdorfite in question was quick to point out that he had of course never actually *tried* this technique, but had been assured that it did indeed work – by a Data General salesman.

Chad

10 YEARS AGO

FROM COMPUTER WEEKLY OF NOVEMBER 29, 1973: American Express Reservations in a shock move decided to close down its Spacebank Sales Centres, so threatening Continental and worldwide reservation system . . . The EEC recommended the European computer industry to consolidate . . . The London Borough of Islington became the first to install an ICL-based in-house online inquiry system making all files available.

Liveware File by Don

PLATFORM

Do users deserve better standards?

DO users view things through half-closed eyes? The word "standards" doesn't awake the enthusiasm among users which some of us think it deserves: the view, if not through half-closed eyes, tends to be through glazed ones. This is, up to a point, a defensible attitude to take today. The question is, how long will it remain so?

Let us first define what we are talking about – communications standards. The words, ironically, convey different meanings to different people. This article is not about "good practice", not about quality control. It is about agreed, quasi-legal definitions (of the kind produced by the British Standards Institution), to which products must conform, in the specific area of communicating electronic devices.

For the cognoscenti, this means protocols, the seven-layer model and all that. For the non-cognoscenti, it means the only known way of ensuring that devices which on paper ought to be able to communicate, actually can.

There are obviously many standards problems in the computing field, but we believe those of interworking are the most crucial.

"Topic understood," you say, "but so what?"

The long-term answer should switch off user yawns like magic. Standards are a means to an end, and that end is buying – in a fully competitive market. Once standards are properly established:

■ They will enable users designing new systems to procure their components each from the best source (eg processing from one vendor, terminals from the second, modems from a third, systems software from a fourth, and so on), without problems fitting them together. This will bring, and keep, prices down.

■ They will enable users to establish communications between existing systems that were not envisaged at system design time (word processors to each other and to computers, for example).

■ They will enable users in different organisations to communicate easily with each other, for such purposes as electronic ordering and invoicing, electronic funds transfer, and electronic mail.

■ They will reduce the number of devices an end-user will need in order to access different systems, and will make invisible to him the difference between local and remote working.

"Once standards are properly established" – doesn't that beg the whole question? you ask.

It certainly calls attention to major problems. The bad news, at present, is that only parts of the necessary standards have been defined, that those parts have only been patchily implemented by manufacturers, and that those implementations are not always as efficient as those of the manufacturers' own "non-standards".

The good news is that the progress that has been made is recent, that there is now a lot of determination to succeed behind the subject, and that most manufacturers are beginning, as a result of the shake-up of the established patterns of the market place administered by microtechnology, to see standards as their friend, not their foe.

We now believe that communications standards will be defined, and will be implemented by all the manufacturers that matter (ones which will survive!). What we don't know is when. Five years from now looks a sensible guess.

The term "properly established" is worthy of comment too. Three areas which we as users con-

This is an extract from the National Economic Development Office report: A User Perspective on Information Technology.

sider vital for the proper establishment of communications standards are:

■ That the definitions should contain no ambiguities and, for any one functional purpose, no alternatives.

■ That there should be independent, and internationally accepted, testing of conformity.

■ That cost-efficiency of implementation should be a criterion of whether a standard has been fulfilled.

Now is the time for users to stress these points as loudly, as often, and in as many ears as possible.

"OK," you say, "but you haven't said what we do during the intervening five years."

There are three possible broad strategies.

The first strategy is to do nothing about communications standards; or rather (since taken literally this would mean having no electronic communications at all, which seems drastic) to do the minimum. The half-closed eyes approach, in fact.

What that means in practice is to solve each communications problem as it comes up ad hoc, and no overall strategy. It means not setting up communications where you don't have to, and where you do have to, using the simplest available means.

Now is the time for users to make a noise, as loudly, as often, and in as many ears as possible

There is a lot to be said for this approach in the short-term. The snags are longer term – eventually the set of lash-ups you are creating will become unmanageable and will have to be replaced by something better organised, and the breadth and variety of the problem you will by then have created for yourself will make the transition pretty painful.

Nonetheless, if you feel a series of ad hoc solutions can be kept under control for five years or so, giving you in due course a once-for-all transition to proper standards, this may be a sensible strategy for you.

The second strategy is to adopt a manufacturer's full-blown set of standards (or non-standards). The short-term benefits of this strategy are that it should provide you with an easy, ready-made way of setting up intercommunication, and it should avoid the clutter of ad hoc arrangements just discussed.

The short-term cost is that it restricts you to intercommunication only between items from that one manufacturer (plus maybe his satellite followers). The long-term risks are that it may lock you into that manufacturer, and may also hence exclude you from areas of the technology where he may have no products to offer.

"Most manufacturers are saying that they intend to adapt their current standards to conform to proper standards when these are available; and it seems likely that they mean it, so what is the problem?, you say.

First, they may find that adaptation hard to achieve without sacrificing either compatibility

■ Continued on page 17

ComputerWeekly
Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS
Thursday, December 1, 1983

Ada compromise must be reached

ADA may not be everyone's cup of tea, but if Britain's future depends to a large extent on its software expertise, then Ada is a vital language for us to learn.

It is not like developing the next generation of airliners; the UK could have chosen not to build Concorde. The American Defence Department has said Ada will be the basis of real time systems in the 1990s; so it is likely to be. The Pentagon's backing means that it will not only be dominant in the US, but worldwide. The UK has enough good brains in real time programming to make a major contribution to these developments and reap big rewards.

That is why this week's announcement that the Defence and Industry Ministries and British Telecom have dropped one of their main Ada research jobs is little short of a disaster.

The ostensible reason for the breakdown of talks on financing the plan was that BT and the MoD wanted to fix the price. The programming consortium wanted to safeguard themselves against an overspend by signing the old-style cost-plus type of contract.

Both views have a point. It is understandable that the MoD wants to get away from the system of paying its subcontractors which has cost the taxpayer so dearly over the years and attracted much adverse criticism. It is also clear why BT wants to appear thrifty as it flexes its muscles before its sale to the private sector.

Software houses, for their part, are naturally afraid of committing themselves to complete such a novel venture precisely on cue. Anyone who ever did a debug can appreciate why.

But should they have allowed negotiations to break down? It may be that those holding the cheque book are indulging in a little brinkmanship against ICL and its partners. If so, it is a dangerous game to play.

The Augusta Consortium, led by CAP, is anxious to get in on the work which the Industry Department did not originally offer it. But it already has its hands full in supplying the tools to support the new environment. It is doubtful whether it could tackle the whole thing alone.

So, after the squabbling over how the cake should be cut, it seems there may be no cake after all.

It is small consolation for us to note that some of the American tasks are also running behind schedule, although it is futile to pin our hopes on the Pentagon delaying its commitment.

All involved should quickly learn the meaning of compromise.

Too much to ask?

THE industry's latest initiative to prod the government into changing the copyright law is to be welcomed. It is over two years since the Green Paper on the issue, yet the government has still taken no action. It says it will not do anything on a piecemeal basis, and we have to wait for the broader review of the subject. When will that be? Not before the next election – that is the betting of some who having been following the issue closely.

Without being too cynical, it is likely that the next Cabinet would decide to throw the whole concept into the melting pot again. So, no visible progress between 1977 – when an official report urged bringing the law up to date – and 1987, the earliest likely date for a general election.

We have said this before, but it needs to be said again until something is done: any government claiming to want an environment that encourages enterprise must ensure that inventors get the fruits of their labour. If the Cabinet backslides in this, surely there is an MP with enough vision to take up the challenge from the information technology business and make copyright the subject of a Private Member's Bill.

It is surprisingly simple, after all. The British Computer Society only wants "literary work" to be re-defined to include "computer programs" and "writing" to be construed as covering "input" and "output". Is that so much to ask?

1984 and all that . . .

THIS week's example of the strange things people say about computers was sent in by Jon Talbot of Tewkesbury, Gloucestershire, who wins £5.

Computers don't always spell words in their dictionary forms, e.g. program and disk.

What's On in Gloucestershire.

LETTERS

Critics should observe rule of etiquette

ONE of your reviewers appears to have forgotten the book critics' first rule of etiquette – that if you are going to slate a book, you should read it thoroughly first.

I refer to Arnold Arnold's review of Build Your Own Expert System by Chris Naylor (*Computer Weekly*, November 10).

It may be forgivable for a hard-pressed reviewer to skim over those last few chapters if he is broadly in sympathy with the writer's viewpoint and plans to tell the world so (though it is not to be encouraged). But when a critic kicks an author where it really hurts – in the royalty statement – he is morally obliged to understand what he condemns.

Yet the review states: "If you believe that a cold day is likely to be followed by a warmer one (or vice-versa) and that this increases the likelihood of rain by 60% you then enter that fact into your informational matrix. If you think you know something else that creates a 40% likelihood of rain, you enter that figure as well. You then average the total and get 50% . . .

"I don't need a computer for that. I can arrive at precisely the same conclusion by flipping a coin. But then, as Naylor states from the start, that's not really the point."

Flipping a coin is indeed beside the point. A more important point is that, having read the book from cover to cover, I cannot find adding up and averaging probabilities recommended anywhere in it as a method of combining evidence.

On the contrary, the method proposed uses Bayes' rule – which is not a simple averaging scheme. See, for instance, pages 43, 193-194, 204 and 232.

I look forward to the day when Naylor reviews Arnold's forthcoming magnum opus in your pages. I do not need Bayes' Theorem to predict that Arnold will then receive more conscientious treatment than he saw fit to dish out in this case.

RICHARD FORSYTH
Hexadecimal Press
London.

Operators aren't nodding morons

ON reading Margaret Park's article Tales of the Op's Death are Greatly Exaggerated (*Computer Weekly*, November 10), I was appalled that a person in a deputy editor position of a leading computer newspaper could have such antiquated ideas of the roles of modern operators.

In one article the careers of operators were reduced to being nodding morons, shuffling around a geriatric ward, awaiting early retirement in five years' time. Or if the gods were smiling, elevation to the heavenly world of programming.

Being part of an operations department and coming into contact with many other operators from a wide range of companies, I can state quite categorically that operators lives are far from sedentary.

In a world where users are much more aware of the functions computer systems can and cannot perform, operations is often at the sharp end of user liaison, with consequent high demands on technical and diplomatic skills.

With the demise of heavy centralisation of computer resources and increase in front end processing, operators now require a thorough understanding of both mainframe and minicomputer systems.

They are now a powerful force within the DP team and an important asset to system design and implementation.

I implore you to subject even your deputy editors to high standards of research and accuracy that your paper usually abides by.

Operations is by no means dead and I have no intentions of drawing my pension in the forseeable future.

S. P. McDONNELL
Chief operator
Lowndes Lambert Group
Swindon

Incorrect title

I WAS flattered and delighted to find that comments I made at a recent conference, criticising the government's Data Protection Bill, were given headline treatment (*Computer Weekly*, November 3).

However, I must correct a statement made in your report; I am not the chairman of the Council of the Institute of Information Scientists – I am not even an ordinary member of the institute's council. It is true that I was responsible for preparing the institute's submission on the Bill, but the views I expressed at the conference were purely personal.

DR COPPENHEIM
Billericay

Do users deserve better?

■ Continued from page 16

with their existing standards or performance under the new standards (or both). Either of these sacrifices would be painful for users.

Secondly, they may not be motivated to make transition easy or cheap for their existing users (as contrasted to their prospects). Their self-interest could be seen as lying in the other direction; and it would not be difficult to make transition aids perfunctory or late, or the performance resulting from their use unattractive, if they were so minded.

Thirdly, will they really all adjust their existing standards when they have evaluated the technical and commercial implications? The amount of pressure users bring to bear may be crucial here.

However, there will again be people for whom this second strategy is right. If you feel that your problems in the next five years will be intractable without a concerted strategy, and if you believe either that your favourite manufacturer (plus his satellites) will supply all the communication system components you will ever need, or that he will give you a decent transition to proper standards in due course, then maybe this is the strategy for you.

But if the first strategy is one of half-closed eyes, the second could be one of rose-tinted spectacles.

The third strategy consists of taking steps towards the eventual proper standards rather than away from them wherever possible, of minimising the eventual transition to them, of climbing up the early part of the learning curve of applying them. It is not elegant: it is scrappy.

It is not optimum in the short-term, but it could bring substantial advantages in the long. And it does seem preferable to the first two.

What, then, should you specifically do in pursuance of the third, the open-eyed strategy? A lot of miscellaneous pieces of advice can add up to a scrappy strategy, as we have said. We think they make sense but one of the prices to be paid for the benefits of the third strategy is that the eyes have to be kept open.

The advice that follows applies, in general, to new systems you may be implementing and to systems you may be having to revamp anyway. It is not, in the present state of communications standards, advisable to rewrite systems solely in order to convert their communications to standard mode – though it very probably will be in perhaps five years time.

So, what should you do in practice?

You may like to note that a statement that a product "conforms to the ISO seven-layer model" is worthless. The seven-layer model is a framework for standards, many of them still to be defined, not a standard in itself.

At the lower levels of detail of the ISO model (levels one to three or four), some stability of standards is in sight. At the higher, more application-oriented levels, this is not yet so. In the latter areas, the generalised advice is to try to go with suppliers whose *de facto* standards can reasonably be expected to be adopted by at least 25% of the market.

The most stable element in forward-looking communications standards today is the low-level set of packet switching protocols known as X25. Whenever buying hardware (whether you want it to communicate or not), or communications software, it is worth asking the vendor whether what he is offering is X25 compatible.

If the answer is yes, the next questions should ascertain whether it is compatible with prevailing UK implementation of X25, how the compatibility has been tested, and whether you can see a demonstration of interworking with another manufacturer's equipment.

Satisfactory answers indicate that your possible acquisition is likely to fit into the long-term standards scene. Unsatisfactory ones put this in doubt.

The above comments also apply to X21, X21 bis, HDLC and X25 level 2.

Packet Switch-Stream, the British Telecom (BT) packet switched service otherwise known as PSS, is X25-based and provides a UK standard implementation of X25. (Though quite well specified, X25 is not totally without alternatives and ambiguites).

Where you have an even moderately balanced choice between using X25 etc for any particular purpose and an alternative, go for X25 etc. You will almost certainly be reducing your eventual transition problem.

More generally, use the simplest communications protocol which will serve your purposes – except where you can see what the long-term standard will be (which means only X25 etc at present). Simple protocols offer much more flexibility for future transition than complex ones.

Local area networks are at an early stage of standardisation, and any user implementation of them at present involves a gamble on its future. The odds are most favourable in the case of LANs conforming to the most recent Ethernet specification, to the IEEE 802 Draft C specification (of which one element is close to Ethernet, but the specification includes alternatives), or to ECMA TC24 standards.

Teletex is a new document transfer service which provides a standard for the exchange of the text of simple A4 documents (rather than images of documents, which is what facsimile devices handle). It should be available on many word processors and text handling devices in the near future.

In summary then, communications standards are coming and will certainly bring considerable benefits to users. These benefits will be increased if the standards come properly and soon.

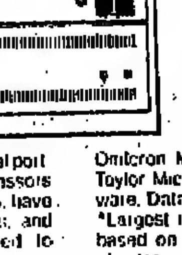
In the interim, you, the user, have three possible strategies: half-closed eyes (set as few standards, *de jure* or *de facto*, as you can get away with); rose-coloured spectacles (go with a manufacturer's standard, and accept the lock-in implications or hope the transition won't be too painful); and open eyes (take what you can, what moves in the right direction, at an increasing pace as the standards scene becomes clearer).

None of these strategies is the definitive correct one – there are few absolute-musts or absolute-must-nots in this area just at present – and only you can decide which, in your circumstances, you should follow.

But we believe it is important that you should take this decision with an understanding of the points discussed, and of further developments in communications standards as they occur.

16-User Simultaneous CP/M-80 and CP/M-86

The ACCRON — Multi Processor System — architecture has one service processor and up to 16 Z80 and/or 8086 based user processors. Each has high speed (1.7Mb/Sec) access to the shared resources such as disks, tapes and printers. The main features are:—



- All standard CP/M-80 or CP/M-86 software will run simultaneously with out modification
- All systems can be (field) upgraded by simply adding more slave processor boards.
- Z80A based slave processors run CP/M-80, have 64KB RAM, 2 serial ports, 1 parallel port
- 8086 based slave processors (8087 optional) run CP/M-86, have 128KB RAM, 2 serial ports, and memory can be expanded to 896KB
- Comprehensive multi-user file management supports file and record locking
- Automatic print spooling, system printers, local printers and inter processor communications are fully supported
- Field proven with over 100 installations. Users include British Telecom, NHS, Local Authorities, and corporate users such as Cadbury
- Many multi user software packages are implemented including multi-user Omicron Management Software, Taylor Micro Manufacturing Software, Dataflex and DBASE-II.
- Largest range of microsystems based on 5.25", 8" or 14" winchester or cartridge disk drives
- 12-slot single-user machine with 8" 1.3MB Floppy and 10MB winchester from £4340 · Three-user machine from £6300.

More details from John Alverne or Steve O'Donnell

NEWTONS LABORATORIES
111-113 Wandsworth High Street, London SW18 4JB.
01-874 6511 or telex 21761

WORKPLACE

GOODWIN . . . *Users of minis are the most fickle.*

IBM users break magic 1,000 mark

AFTER hoveriog in the nervous 900s for a few years, the IBM Computer Users Association (CUA) has taken on its 1,000th member. New membership applicatioos at the association's November meeting bring the total to 1,005.

Mainframe users are still in the majority, accounting for 577 of the individual members. But users of IBM's minis taken as a whole now make up 390 of membership, the largest single group. This includes users of the Series 1, the System 34 and the System 38.

According to IBM CUA secretary George Goodwin, users of the minis are the most fickle, and tend to come and go.

But the popularity of the 4300 mainframe series shows in the increasing number of its users among the members. There are now 365 of them, compared with just 36 old timers with the 370.

The remaining 166 members use the smaller 30X mainframe range. And there is just one user with only a Displaywriter, although this same user has IBM-compatible mainframes made by NAS.

IBM-compatible users do not qualify for membership, but they can join if they have just a single IBM Personal Computer or Displaywriter.

Goodwin says, however, that these users are unlikely to buy an IBM-PC just for the privilege of joining the club. But if they just happen to find one lying around . .

When whims can speak louder than money

THE whims of programmers can be more important than price in determining which IBM CICS application development system users buy. Pilkington went for Pausnphic's Gener/ol mainly because the programmers loved it, according to technical support manager Pete Rogers. "My CICS team were very happy with what they saw," he says.

Price is less of a factor, says Rogers, since there is not much difference in cost between the leading contenders.

Gener/ol is not the only CICS application product to prove popular with users. Cincom's Mantis is the most powerful of all the CICS development systems, and was described by Mike Borton, project manager of manufacturing company Ward & Goldstone as one of the most remarkable software products he had ever come across.

The product, he said, had had "an immediate, profound and lasting impact on all aspects of system development".

Even Pansophic's president David Eskra concedes that Mantis is a force to be reckoned with in the CICS world, and describes Cincom as the main threat to Pansophic in the market.

Oxford Software's UFO also has its admirers, and in the UK has been the most successful CICS application generator so far, capturing about a quarter of the market and being installed at 160 sites. However, Pansophic's UK regional manager John McAughtry claims that several UFO sites are switching to Gener/ol.

With many big IBM installations looking to upgrade their CICS development systems, the battle is hotting up for a dominant share of the market, and the leading suppliers are all promising plenty of goodies to woo users and programmers next year.

Cincom, for example, will have release 3.7 of Mantis ready for January, and plans two releases of the product per year thereafter.

IBM itself is still the dominant supplier of CICS development systems. But its share of the market has fallen steadily from over 80% in 1979 to around half now.

And third party suppliers of CICS application generators are likely to be further encouraged by IBM's recent idea of levying an upgrade charge on users of its software. The IBM Computer Users Association is at present opposed to this move.

The biggest five suppliers of CICS application generators in the UK, apart from IBM, are Cincom, Pansophic, Cullinet, ADR and Oxford Software. In the UK, Oxford's UFO is distributed by Fee Ltd of Watford.

Oxford Software has recently added a new twist to the game by offering UFO Cobol, which helps programmers to write Ansi Cobol programms in a CICS environment. This is an interesting move because it shows again that the leading suppliers are paying attention to what programmers want.

Not all programmers want a non-procedural applications generator, and many would rather continue to hack away with Cobol. But they still need a productivity tool, and UFO Cobol is for them, according to Oxford president Judd Shanker.

"We've taught CICS to Cobol so that you don't have to teach it to your programmers," Shanker comments.

But the CICS application product of the moment seems to be Gener/ol, a product astutely acquired by Pansophic from the small US software house, Software Generation Technology.

Gener/ol has got off to a flying start, with 12 sites already using it in the UK. Significantly the product has just been installed by Segas, which has the UK's biggest IBM CICS installation, with 1,500 screens, and processing 50,000 transactions a day.

Such a huge workload was proving too much for UFO to cope with, and it remains to be seen how Gener/ol will manage.

Rogers of Pilkington says that the shortage of CICS programmers was a big factor in his choice of Gener/ol. Pansophic says that a trainee can learn sufficient in half a day to write a simple transaction using the product's commands, which are in a language similar to English.

Rogers says it is too early to say just how easy Gener/ol will make programming life, but says the early signs are promising.

He points out that system development costs are now running far ahead of running costs, so an applications generator is becoming a prerequisite. This is especially true at Pilkington, where there are a lot of applications, many of which have a relatively short life.

Pilkington has just installed an IBM 3083 and has about 160 terminals on CICS. It is trying out Gener/ol on re-writing costing applications, and on the expansion of an engineering system.

It is worth remembering that about half of the programming effort at large IBM sites goes on maintenance of existing Cobol systems, and the applications generator has to cope with this. Gener/ol offers line by line compilation of code and immediate syntax checking.

Next year will be interesting for CICS users because IBM is likely to begin the process of unloading data processing power onto the personal computers.

Cincom has been quick to move in this area, and plans to allow customers to test a subset of Mantis called Cricket running on IBM's new XT/370 PC in the spring.

Get information on information

ABBRDBEN University has been given £135,000 by the Science and Engineering Research Council (SERC) for research on intelligent knowledge-based systems.

The money will be spent over the next three years, and the project will attack the problem of getting information from databases.

The team at the university's computing department will build a system which understands and gives information about data held at remote databases.

Says Dr Peter Gray, the project head: "It's all very well for experts to use their own databases because they know and understand how the information is stored. Other databases elsewhere are not so accessible because they have unwritten assumptions in their structure."

A user who does not know how data was collected or what sort of information a database contains will have to ask questions about the data as a preliminary. For example, an unfamiliar user would need to ask where a particular type of information was stored on the database before being able to find things out from that data.

Information of this kind, that is information about the database rather than the information itself, is called metadata.

The aim of the Aberdeen project is to build a prototype "metadata advisor" to answer queries which an unfamiliar user has about a database.

Gray hopes in the longer term to build expert systems, and an initial study is being made in association with the College of Agriculture into the possibility of setting up a horticultural advisory service.

GRAY. . . *"Unwritten assumptions."*

"And when did you first discover this memory lapse?"

Computer Technology doubles commission

TO avoid clashes between its own sales force and sales through its systems houses, Hemel Hempstead-based minicomputer manufacturer Computer Technology Limited (CTL) is to start paying double commission.

The company, which sells 32-bit failsafe minicomputers in the £25,000-£400,000 bracket, works extensively through systems houses, particularly for first-time buyers.

"Our salesmen only sell to second-time users, so when they come across first-time users they have to give to leads to a systems house," explained Bob Finch, CTL's managing director. "When that happens, both parties get the 1% commission."

That policy seems to have paid off, as CTL is leap-frogging the problems bedevilling the minicomputer industry. Announcing half year figures last week, Finch revealed that turnover was 30% up on the equivalent period last year, which, in turn was 50p up at £7 million on the previous year.

"We haven't been affected by the economic climate at all," said Finch, "and we are very pleased with CTL's progress in a tough market, although we are not complacent."

This year, CTL has boosted its manufacturing plant at Hemel Hempsted to 25,000 square metres, and launched its 32-bit 9000 series of Momentum minicomputers, aimed at the transaction processing market.

However, although CTL launched its first minicomputer in 1968, it currently has only about a 2% share of the UK minicomputer market, according to Finch.

Last December, the company launched its Marketline scheme to sign up systems houses. So far three have signed up – System Solve, Leasco and Fraser Williams – and another 12 are in the early stages of a Marketline agreement.

CTL sells generally across industry and also specialises in providing turnkey pathology laboratory systems, and currently supplies most of the satellite checkout systems for European Space Agency satellites.

The company will supply the checkout system for the European Space Agency's Glotto satellite which will plot Halley's Comet in March 1986.

CTL's medical systems "did not have as many orders as expected", says Finch, and he attributes that to a slowing down in orders by the National Health Service rather than losses to competitors.

Along with Office Technology and Network Technology, CTL is a subsidiary of the Information Technology Group, which includes former ICL supremo Geoff Cross, on its board. Iann Barron, managing director of Inmos, was until about two years ago on CTL's board.

The difference between CTL's failsafe system and other failsafe systems is, according to Finch, that CTL "sets out to achieve database resilience".

CTL's Momentum marketing manager, Tony Smith explained: "Other nonstop systems have parallel processors operating synchronously, with checkpoints along the way. That causes problems".

The responsibility for putting the checkpoints in the programs is left to programmers, who vary in competence, and unless done properly, that can affect the overall performance of the machine.

UK repair service is set up to by-pass US

THE problem facing many disc manufacturers and distributors of sending faulty devices back to the US has led to the setting up of an independent UK company, Memory Maintenance.

"It is a solution to a problem," said managing director John May. "None of the companies we have signed agreements with have a repair service in the UK and only one has a European-based service. The rest all have to be sent back to the US."

Winchester discs need to be repaired in a class 100 clean room and according to May this costs between £70,000 and £80,000 to build. Most disc distributors do not have the volume of repairs to justify the investment, he said. US disc-makers are starting to set up their own UK repair operations – for example, Tandon has done so in Reading – but generally speedy Winchester repairs depend on third parties.

"On average it takes 8-10 weeks to send a disc back to the US for repair", said May. "Memory can do the repair within five to 10 days from receiving the disc.

"This means that distributors and dealers do not have to have so many discs on standby. They also do not need to have so much money tied up in stock."

However, Memory does not intend to restrict its service to Winchesters but will also repair floppy and microfloppy discs.

So far Memory has signed agreements with Bull's peripheral operation, Atasi, Microscience, Vertex and Tabor.

Based in Swindon, Memory has built a 350 square foot clean room capable of dealing with 6,000 Winchester discs per year, but with the ability to expand easily. It aims to repair at least 2,000 in 1984.

Investment so far comes from Memory's two directors, John May and Clive Markley, and a government guaranteed bank loan totalling £15,000.

PUZZLER

IN this week's alphametic, W is twice as big as V (as you might expect from the size of the two letters). See page 63 for the unique solution to this addition sum.

F I V E
T W O
O N E +
E I G H T

Workplace is compiled by Philip Hunter

PEOPLE

■ Instem Computer Systems has appointed Tony Bonser as Northern sales engineer. He moves into sales after working in Instem's systems engineering and product support department for the past seven years.

■ As part of its plans to expand in Ireland, Kerridge Computer Company (Ireland) has appointed Bob Sinnatt as general manager with responsibility for all 32 counties. Born in Cork, Sinnott was formerly based in Birmingham as a major account manager for Sperry.

■ Euro Electronic Instruments announces the appointment of Stuart Illsley as external sales engineer. He was previously with GEC Computers at Borehamwood as an electronic engineer.

■ A. G. Andrewa, vice-president of Dennison International, has been elected president of the Business Equipment Trade Association. This will be his second term of office, having previously served as president in 1977/78.

■ Gerry Flaher, who has been computer services controller of Associated British Foods for the past 15 years, and president of the British Computer Society 1966-67, has left ABF. He is currently discussing various opportunities, but says he may return to Scotland in an independent role.

■ Chria Ringrow, an authority in digital communications, has joined electronics consultant Cooke Associates at the design offices in Brighton. He has completed two years as a research fellow with the European Space Operations Centre in Germany, where he was concerned with advanced digital networks including satellite links. Previously he conducted postgraduate research in microprocessor test equipment.

■ *Harry Scott (left) has been appointed general manager of Hamilton Rentals, and Martin Bramley is named as finance director. Scott has been with Hamilton for five years, most recently as commercial manager, with special responsibility for sales and marketing. Bramley joins the board of North London-based Hamilton from Hamilton Rentals in France, where he has been finance director for the past four years.*

■ Microdata managing director, Jerry Causley (above), is to become European president of the company. A European office will be set up at Microdata's UK headquarters at Hemel Hempstead.

■ Eddie Storey has been appointed national accounts director of Fidelity, after two-and-a-half years with the company as general sales manager. He was sales director of Ingersoll Electronics for several years before joining Fidelity.

■ Dataproducts has appointed Frank Roche as OEM sales executive for major accounts. Prior to joining Dataproducts a year ago he was with ICL for 14 years.

Sales chief dies on holiday

JOHN BOWDEN, sales manager at Research Machines for the past five years, has died suddenly while on holiday in the United States. He was 45, and leaves a wife, Joan, and son, Stephen.

Bowden, who lived at Cholsey, Oxfordshire, first became involved with Research Machines through representing Vero, which supplies the company with electronic equipment.

■ Arthur Young McClelland Moores & Co, chartered accountant, has appointed Hamish K. Guthrie as its first computer audit partner in the field of accountancy in Scotland. He joined the firm in 1973, and in London managed the computer audit department assisting major clients including public authorities as well as oil, food and engineering companies.

■ Neil Kempson has joined Vikingshaw, the Kent-based computer site preparation and building services group, as technical sales engineer, with primary responsibility for the small works department.

■ Charles H. Dickinson has been appointed director of sales at McCorquodale Machine Systems.

■ Christine Casten (left) who recently arrived in the UK from Wang Laboratories in Lowell, has been appointed Wang UK's national marketing planning manager. She is also responsible for the marketing group involved in business planning. Casten has been with Wang Laboratories for the last seven years. Chris Gascoigne, who has been with Wang UK for the last five years, has been appointed Wang UK national marketing manager. He will be responsible for the development of marketing programmes and marketing communications, including public relations and sales promotions.

■ At its annual meeting, the Peripheral Suppliers' Association elected as chairman Ken Heather (above) of Pragma, a company he formed in 1971 with two colleagues. All three had previously worked together for the company which is now Mannesmann Tally. The association also elected Tom Dalzell of Sintrom Electronics vice-chairman, James Crook of Data Design Techniques treasurer, and members of the council are Bob Briten, W. Boffin (Ambitron); B. Fadil (Data Dynamics); D. Holland (Digi Data); D. Lyon (Peripheral Hardware).

■ ICE (Independent Computer Engineering) has made several internal promotions.

Paul Griffin (left, who joined ICE from Visa (where he was financial manager), has been promoted to financial controller. Paul Smith (second left) previously software manager of Valasak, has been appointed development manager.

Julian Moore (second right), has been promoted to international sales manager. Paul Dunne (right), has been appointed operations manager.

DIARY

DBCEMBBR 1-2

Viewdata for IBM Users, Xephon seminar for senior DP and information systems management. Berners Hotel, London. £370. Further details from Mary Haines on (0628) 74922.

DECEMBER 5

Export Systems – the Challenge for Information in the 90s. Royal Aeronautical Society, 4 Hamilton Place, London. £70, or £60 for members of Aslib. Further details from Aslib, 3 Belgrave Square, London SW1X 8PL.

General meeting, user group Ofix (Office of the Future Information Exchange), Kennedy Hotel, Cardington Street, London NW1. 2pm. Speakers on local area networks. Admission £5; non-members welcome.

Meeting on expert systems. BCS South Wales. Dr Max Bremer, Open University. Business Statistics Office, Newport. 7.00pm.

DECEMBER 6

Computer-based learning – the state of the art today and tomorrow. BCS Hampshire. Bob Windsor, Council for Educational Technology. Mountbatten Theatre, East Park Terrace, Southampton 7.30pm.

Seminar on international electronic mail service, Computer Science Corp UK headquarters, Savile Row, London W1. Morning and afternoon. Further details from registrar on 01-439 6252.

Development of computer games. BCS London North-West. Richard Gibson-Robinson of EMI Video. Monksdene Hotel, London. 7.45 for 8pm.

VLSI today and the Alvey programme. BCS Microcomputer Group. Dr Bill Fawcett, Alvey director for VLSI; Sir Clive Sinclair; Dr Andy Hopper, Acorn Computers; Jack Pearson, Ferranti Electronics; John Allenby, ICL. Admission £5 (£1.50 members). Slough College of Higher Education. 1.30pm.

Data protection, legislation. BCS Wolverhampton. Patrick Raymont, NCC. The Polytechnic, Wolverhampton. 7.00pm.

DECEMBBR 7

World communications: tomorrow's trade routes. BCS. Royal Lancaster Hotel, London.

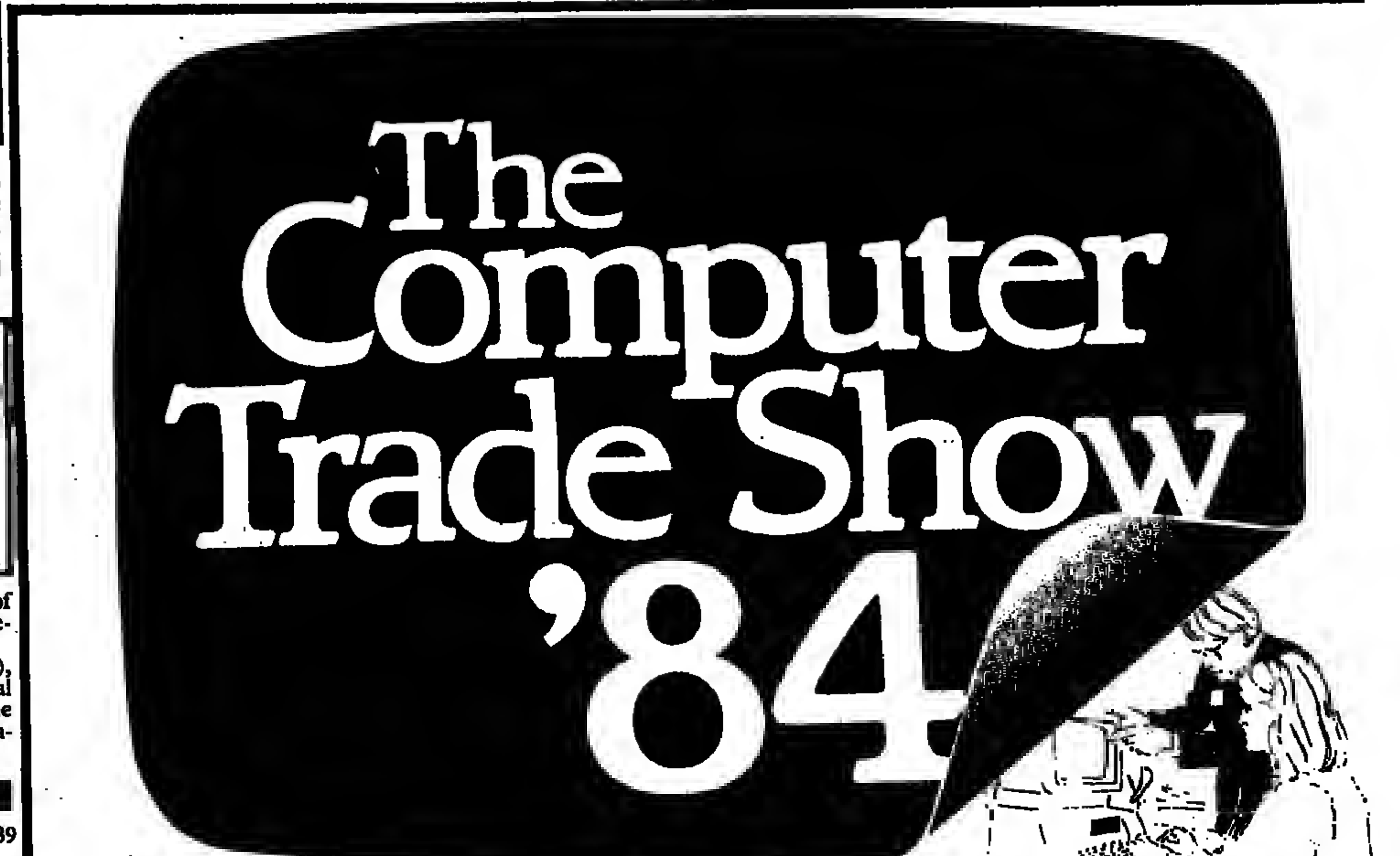
Police national computer unit. BCS Bristol. P. Kelly, Home Office. St Vincent Rocks Hotel, Bristol. 7.15pm.

Data protection legislation. Panel Discussion led by Chris Amery, IBM, BCS Coventry. Lanchester Polytechnic, Coventry.

Display algorithms. BCS headquarters, London. 2pm.

Paperless trading. BCS Humberside. Reckitt and Colman, Hull.

Learning from the past, planning for the future. BCS Merseyside, L. Allen, Plessey. Atlantic Tower Hotel, Liverpool.



"Where the professionals meet"

Wembley Conference Centre March 13–15
Open 09.30–17.00 daily

If you want to talk to buyers then 'The Computer Trade Show '84' is the certain way of reaching an audience of the highest quality. Only bona fide trade visitors are admitted to the show and at the last exhibition 3,653 trade buyers came to 'The Computer Trade Show'. Such people are serious business buyers, with 41 per cent of 1983 visitors involved in computer/WP systems distribution and 25 per cent looking for OEM equipment for systems integration.

This impressive audience attends 'The Computer Trade Show' because of the guaranteed quality of the show. Held near the centre of London at the modern Wembley Conference Centre with its sophisticated businesslike atmosphere, it is staged by the country's largest exhibition organiser, Reed Exhibitions. Sponsors of the show are 'Computer Weekly', 'Systems International', 'Software', 'Practical Computing' and 'Micro Business'.

A prestigious conference programme held in conjunction with the show is certain to attract wide media coverage and professional visitors of a high calibre. With important industry issues discussed in depth, the conference will be the talking point of the year in the trade. For further information contact Christine Jones. Tel. 01-643 8040.

Reed Exhibitions has organised an impressive promotional programme for 'The Computer Trade Show '84' with direct mailings to selected visitors to the COMPEC series of exhibitions and to the entire circulation of the sponsoring magazines. Editorial previews of the exhibition in the sponsoring journals will ensure that interest in the show is at its height in the crucial period just prior to 'The Computer Trade Show '84'.

With this kind of backing it is no wonder that an important number of computer companies, like *Digital Equipment Company, Perkin Elmer, Kode, Norsk Data, General Automation, Rediffusion, Geveke, Newbury Data and Multicomputer*, have already booked stand and space at the show. So if you want to be sure of meeting thousands of business buyers with bulk purchase at the forefront of their minds you must reserve your stand space at 'The Computer Trade Show '84' by clipping the coupon below, or better still phone Gillian Johnson on 01-661 3125 NOW!

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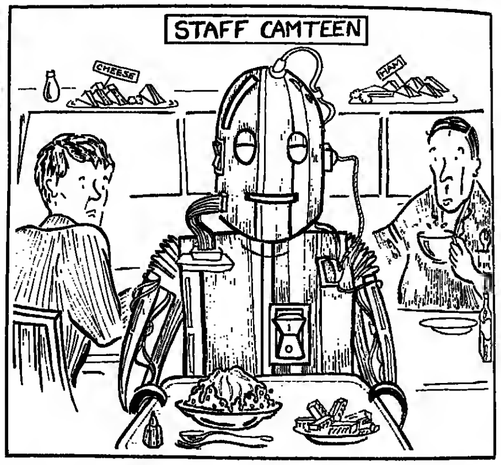
SOFTWARE MONTH

The original aims of computer-aided design and manufacture have been realised. Now there is a move to give engineering staff access to an entire range of CAD/CAM capabilities. . . Software Month traces the industry's growth

How CAD/CAM is taking over on the factory floor



Where only the British Aerospace and ICIs of the world could afford the £1 million-plus necessary for mainframe CAD/CAM (and still do, of course) now even the smaller company can afford CAD/CAM on £10,000 micros

JUST as manufacturers have come to realise that word processing is only a part, albeit an important part, of the overall concept of the automated office, so are they now realising that CAD/CAM is but a part of the automated factory.

Indeed, some manufacturers are now taking the concept further by claiming that the automated manufacturing process includes both the automated office and the automated factory.

The move towards this new integrated approach started in the early 1960s with computerised numerical control machines.

Dennis Papworth, Data General senior marketing specialist for CAD/CAM and industrial automation, explained the development.

"In those days," he said, "automation consisted of a lathe that might have a punch tape controller. A programmer would write a system to control the lathe – a method that, in modern terms, was arduous, difficult, lengthy and expensive. The breakthrough came with the arrival of minicomputers at a much lower cost than the traditional mainframe.

"With high level languages like Fortran it became easier for companies to automate the manufacturing environment – process control, machinery control, and so on. At this stage the two leading lights in the minicomputer world were DEC and Data General.

"From then on," he continued, "we have seen a steady process of evolution. More and better software is becoming available on cheaper machines. Where only the British Aerospace and ICIs of the world could afford the £1 million-plus necessary for mainframe CAD/CAM (and still do, of course), now even the smaller company can afford CAD/CAM on £10,000 micros.

"We see two basic markets: high value, low volume (as in a blade within a turbo jet engine); and low value, high volume (as in shirt buttons and spark plugs).

Data General can tackle any job, from the widget to the aircraft manufacturer."

Papworth was brought to Data General to ensure that this capability is turned into actuality.

He has established a programme of working with ISVs (independent software vendors) and IHVs (independent hardware vendors) to put his company and third party hardware together with third party software to create Data General's "factory of the future".

To did this, all the standard CAD/CAM software is already available: McAuto, Anvil 4000, Pafec, Ginn-F and so on.

"Data General's philosophy," he concluded, "is to enable users to have multi-functionality on one machine: for example, data collection from the factory floor, CAD terminals used by designers and engineers, administrative workstations for word processing, stock control for the production engineers – all of this can be and is handled by the Data General MV10000."

However, despite Papworth's enthusiasm, it was evident he was holding back on information. He admitted that he had been employed to "gee up industrial automation marketing", and he claimed Data General would "substantially increase its market penetration during 1984", but was unable or unwilling to say more.

Time will tell just how important his new developments actually are.

In the meantime, other manufacturers are equally active, and all are beginning to pursue the automated factory concept.

A few weeks ago James Berret, president and chief executive of market leader Computervision, visited the UK to explain his company's recent moves in the market.

"During the past several months," he announced, "we have made a number of agreements, associations and acquisitions, including that of Cambridge Interactive Systems from your country and Grado of West Germany, as well as the Organisation for Industrial Research from Massachusetts.

"We have also signed an important technology-sharing agreement with Sun Microsystems of California," and last, but not least, "a major contract with IBM."

He went on to explain the significance of these acquisitions. And the picture he drew was one of a growing realisation that CAD/CAM, Computervision's own speciality, can no longer be viewed in isolation from the rest of the factory.

"CAD/CAM systems," he explained, "were originally conceived to make the engineer's job easier . . . that vision has been realised."

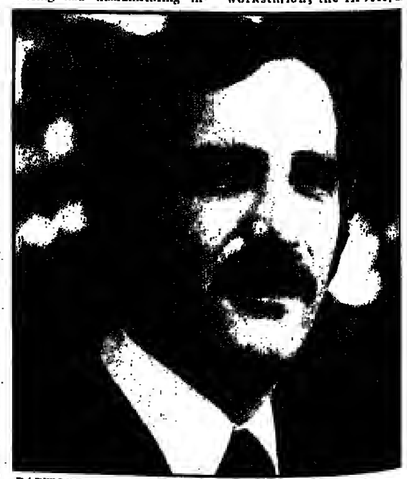
Now, he continued, "our customers have told us that they want to give their entire engineering staff access to an extended range of CAD/CAM-related capabilities. For example (the engineer) may want access from his terminal, through a communication network, to manufacturing cost data so that he can select the most cost-effective part or material for a particular job. Or he might want to use some office automation capabilities such as word processing to prepare specifications or reports on his work.

"In many cases, his activities will generate conceptual design information which will be used at a later stage in the product design and manufacturing process. For example, an electronics engineer might use his engineering workstation to complete a logic design, then pass that information through a communications network to a CDS 4000 system where the printed circuit board layout will be completed."

Hence the agreements and acquisitions – with Sun Microsystems for the networking capabilities; and CIS and Grado to produce new software for the new concept.

And to bind it all together into the automated factory is IBM. "By integrating selected IBM hardware and software into a complete Computervision systems solution, we will be able to provide not only the capability to create new engineering and manufacturing information, but to manage and control that information as well."

BERRET . . . . Growing realisation that CAD/CAM can no longer be viewed in isolation.



PAPWORTH . . . . "We have seen a steady process of evolution."

Chasing the same concept, but from a different starting point, is Hewlett-Packard. HP already has the necessary hardware and communications capabilities. "Now," explained Mathew Wallis, third party marketing manager, "HP is actively seeking the best of the market's CAD/CAM software to go on to our MPN."

MPN, it must be explained, is the HP Manufacturer's Productivity Network, a vast and ambitious project that aims to integrate four separate manufacturing areas of administration, CAE, factory and plant automation, and operational planning and control systems.

"To achieve this," continued Wallis, "we need a networking approach where different users can share common peripherals, like plotters and large discs. We've chosen an Ethernet network, which is working now, but are slowly working towards the ISO-recognised IEEE 802.3 standard. This is an Ethernet compatible baseband standard that should be available by the end of 1984."

At the heart of this new approach is the proprietary Focus 32-bit chip. This has enabled HP to develop its primary CAD/CAM workstation, the HP9000; to concept a supermini, in size virtually a desk-top micro.

One third party software developer commented that he could get "about half a Vax from the 9000". Below this is a 68000-based microcomputer that is virtually used as an entry-level device into the MPN. With this hardware "our strategy", continued Wallis, "is to use third party software as much as possible. We accept that industry standards already exist, and we want to ensure that those standards are available to our own users.

"Today, we have to accept that software very much drives the selection of hardware. You cannot simply market boxes any more. People don't buy boxes – they buy solutions. Our aim is to provide those solutions in an integrated and automated manufacturing environment."

SOFTWARE MONTH

New ideas come off drawing board

An analysis of trends in CAD/CAM shows that integration is just beginning

CAD/CAM is clearly one of the most dynamic growth areas in the computing industry. But it is surprising how the different manufacturers and software suppliers see the trends moving in different directions.

CAD/CAM seems to be moving towards networks, towards micros, towards host systems and towards turnkey systems depending solely on the products of the supplier concerned.

Two things that are certain are that the industry is largely software driven, and that integration as a concept is just beginning (though still on its own CAD drawing board).

LEE. . . . "Shortage of good design draughtsmen."

Norsk Data, however, takes the integrated approach one step further. Phil Nodin, marketing manager, explained: "Having formulated the integrated approach to CAD/CAM technology, Norsk Data is looking to develop further growth areas, particularly in the mechanical, electronics and civil/structural engineering markets.

"Long-term goals include further investigation into the field of artificial intelligence as it relates to the CAD/CAM market by refining the concept of the 'expert system'.

"Building design rules and high engineering principles directly into the software program itself would give the draughtsman access to knowledge associated with senior engineers, improving project efficiency by raising the skill level of all professional designers and development engineers.

"In short," he continued, "Norsk Data approaches the CAD/CAM market with what amounts to a strategic planning concept for manufacturing concerns, rather than a specific range of dedicated products. Integrated software tools coupled with powerful machines will prove to be the way ahead for design activities in the future."

One of the software products currently available on Norsk Data hardware is Romulus from Shape Data. Dr Tony Bishop, Shape marketing manager, explained the importance of Romulus 2: "The great majority of mechanical CAD/CAM systems are used only for draughting, and hence affect only the drawing office. But to achieve real savings, a complete and accurate product description must be produced.

"This can then be used by all the downstream applications such as stress analysis and numeric control programming. The product description is generated by the design engineer – he needs a system that allows him to design creatively and interactively. Systems such as Romulus 2 provide just this capability.

"Last year," he went on, "a machine component was produced on a CNC milling machine directly from Romulus data via the GNC system (a CADCentre product used by permission of Counting House). Not a single physical drawing was created or used during the entire process."

Pafec is one of the recognised software leaders in the CAD/CAM area, with its Pafec, Dogs, Boxer and Pigs packages. Ian McKenzie, Pafec CAD manager, told us that he is "about to announce new products in the areas of computer-aided numerical control and three-dimensional wire frame modelling. Later next year we shall also be releasing products specifically tailored for the architectural and reinforced concrete design areas."

In the meantime, McKenzie feels that CAD/CAM buyers do not always make sufficient demands on the would-be supplier. "Many companies," he explained, "still present the CAD/CAM supplier with a checklist – and are satisfied if he is merely able to tick off an item such as finite element analysis.

"It isn't always realised that this is an extremely complex subject. Just because the salesman claims his product can do it, doesn't mean it can support or is even properly interfaced to the draughting and design functions.

"It is only slowly that the buyers are beginning to appreciate the full complexities in CAD/CAM requirements, and the differences between different types of three-dimensional modelling; between wire frame modelling, solid modelling, and surface modelling."

LONG . . . . "Trend to larger systems with low-cost workstations."

The real solution, he feels, may rely on "attending a training course, or insisting on a trial rental from one of the suppliers".

Harris Systems is one of a large number of hardware suppliers that support Pafec software. Jonathan Long, Harris marketing specialist, sees a "CAD/CAM market trend away from turnkey systems to larger, more flexible supermini host based systems with low-cost workstations. This trend is being driven by disappointing performance from the heavily loaded turnkey system, a growing need for a large and integrated database, and the need to share the CPU with non-CAD/CAM applications."

Another supermini supplier is Digital Equipment, which is never backward in its claims.

"We estimate," said marketing specialist Bob Grindley, "that sales of DEC computers bought to run CAD/CAM software rank us as the number two supplier for CAD/CAM systems in the world – but if you add to this the number of DEC computer components included in turnkey systems, we are undoubtedly the clear market leader."

Digital Equipment has never considered itself a major applications software supplier, preferring instead to enter joint marketing agreements with the leading third party specialists. "But," said Grindley, "DEC will continue to produce the generic tools that aid integration and where appropriate, we will market relevant application software. In short, Digital Equipment will provide the environment for systems builders to design integrated CAD/CAM systems.

"The pressing priority for all CAD/CAM users must be the integration of CAD/CAM with the rest of the manufacturing process. The benefits from this are likely to yield savings that far outweigh the gains that can be achieved by automating any of the functions individually."

Ferranti Cetec is one of the companies with which Digital has a marketing agreement. Keith Nichols, product marketing manager, feels that theory is far outstripping practice.

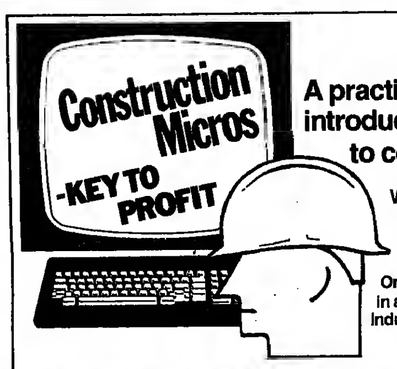
"The CAD/CAM marketplace," he explained, "is being driven by the market analysts who are setting expectations far in advance of current technology. For example, we have recently seen the CAD/CAM concept being taken rapidly through CAE (computer aided engineering) and on towards CIM (computer integrated manufacture), which provides a framework for product design right through to factory automation."

Nichols does not deny the desirability of these concepts, or even that they will eventually come. But he fears that "in their desire to keep pace with these market expectations, some vendors have attempted to expand their system capabilities at the expense of diluting their support services".

Finally, we must give some

Continued on page 24

NADIN . . . . "Looking to develop further opportunities."



A practical conference introducing computer benefits to construction managers

Wednesday, 8th February, 1984

Regent Crest Hotel, Carburton St, London W1P 8EE

Organised by CONTRACT JOURNAL in association with the Construction Industry Computing Association.

The micro revolution brings the benefits of computers to the small contractor as well as the large, to the project manager as well as the offices accountant. But what system to buy? How best to use it?

Find out the answers to these and a range of related questions at a practical conference expertly structured by Contract Journal in association with the Construction Industry Computing Association.

Top experts from the world of construction and the field of computers – plus an exciting range of hardware systems and software packages from leading manufacturers – will combine to give delegates a working introduction to the use of micro computers in construction.

Conference sessions will be supported by a working display at which key speakers will staff a Computer Clinic, allowing delegates to seek advice and guidance about which system to buy and the software packages to put with it.

The day promises to be of real practical value to construction managers and directors – a day to build your confidence in computers.

Contract Journal CICA
THE WEEKLY FOR CONSTRUCTION MANAGERS

The fee £95 plus 15% VAT (£14.28) includes attendance and the conference, documentation, refreshments and lunch.

A 10% discount will be allowed for bookings received by December 1, 1983, and CICA members.

Registration Form
To: Conference Administrator, Read Conference, Room 1313, Surrey House, Throwley Way, Sutton, Surrey SM1 4QQ. Tel: 01-643 8040, Ext 4892.

Please reserve . . . . . place(s) at the Construction Micro – Key to profit conference. Enclosed is a cheque for £. . . . . A VAT invoice will be sent.

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CONSTRUCTION MICROS

08.45 Registration and coffee
Chairman (morning session) Alex Catto, editor Contract Journal
Session one: Getting Programmed
09.30 Choosing the right system – assessing your micro requirement, evaluation of benefits versus price, custom or standard package software, protecting your up grade path, links with other computers, text and telex – the hardware.
Russell Nathan, managing director, RamTec.
10.00 Who uses micro for what in construction.
Rob Howard, CICA
10.30 Coffee

* * *

Session two: Putting Micros to Work in the Office
10.50 What financial modelling can do to make cost control more effective.
John Sellers, data processing consultant, Peat Marwick Management Consultants.
11.10 Integrated accounting systems – what they are, some advantages and disadvantages and alternatives.
Ken King, Manager – accounting systems development project, Wimpey Group Services Ltd.
11.30 Software accounting packages designed for the smaller contractor.
Glenda Wroe, School of Mathematics Computing and Statistics, Leicester Polytechnic.
11.50 What computers can do for estimating.
Denis Wright, CICA consultant.
12.10 Questions on the morning sessions.

* * *

12.30 Lunch, Guest speaker – Chris Hipwell, publishing director of Practical Computing, Your Computer and Computer Choice magazines, will give delegates an appreciation of micro computers.
Chairman (afternoon session) Rob Howard, CICA
Session three: Putting Micros to Work on the site
14.00 What computers can do in site management.
Dr Martin Barnes, director, Project Software Ltd.
14.20 Planning the contract.
Glynn Nixon, director, Micro Planning Software.
14.40 Software systems for valuations.
Brian Fine, consultant, Fine, Curtis and Gross.
15.00 Questions on afternoon session
Session four: Computer Clinic
15.20 Conference speakers will be on hand to answer problems or give independent advice as delegates get "hands-on" experience with the many hardware and software systems on display from leading manufacturers in the exhibition area.

SOFTWARE MONTH

Total of manufacturers and suppliers doubles in year

Software Month looks at the current catalogues and conducts a survey of the CAD/CAM software on offer

WHEREVER there is a software market, there is a software catalogue; and this is as relevsnt in the field of CAD/CAM aiul scientific software as anywhere else. So we decided to look at some of the available catalogues, and to conduct our own survey (by circulating about 100 of the leading CAD/CAM suppliers).

The results of both are shown below, though the list is not meant to be exhaustive.

The number of manufacturers and suppliers has grown from 700 to 1,500 during the past year – a 114% increase.

As befits a company that is sometimes claimed to be the world's second largest publisher, as well as the world's second largest computer manufacturer, Digital Equipment has several catalogues.

Of most use in this area is the Manufacturing Application Catalogue, a directory "designed to help Digital Equipment's customers quickly locate available software, hardware and expertise suitable for manufacturing".

This catalogue includes the business side of the manufacturing process, and lists office automation and sales analysis software as well as the more specific CAD/CAM elements. Nevertheless, it provides details on some 50 relevant packages for systems ranging from the personal computers through PDPs and Vaxs to 10s and 20s.

Also worth looking at are the new DEC Classified Software Catalogues that became available

IBM has two catalogues: one is of some value and the other should be but isn't

in October. While over 30 CAD packages are detailed (mainly for the larger systems), it appears DEC is fairly deficient in the CAM area. Nothing for either area is listed for the PCs.

ICL is another company with a new software catalogue. There is no specific CAD/CAM section, but under the general heading of "Science, Research", ICL lists 28 different packages for systems ranging from the CP/M personal computer through the scientific Perq to the 2900 range.

IBM has two catalogues: one is of some value and the other should be, but isn't. Volume I[1] (Applications) has a section with the general title of "Scientific and Graphics". This includes details of 34 different software packages, but does not separate pure CAD/CAM systems (such as the Computer Graphics Augmented Design and Manufacturing System) from analytical packages (such as the APL Multivariate Time Series Analysis package).

The second catalogue, the Catalogue of Application Programs Available from Non-IBM Sources, displays an absolute dearth of third party software: there are no sections relating to anything resembling CAD or CAM or Scientific.

A third party product catalogue will be published by Computing Publications as two directories in May 1984. These are the Directory of Computer Graphics and CAD/CAM; and the Industrial Automation Directory.

The CAD/CAM directories started life as the Directory of Computer Graphics, CAD and CAD/CAM published by Interco Business Consultants. When it moved to Computer Publications David Mankin moved with it. He provided the information shown in Table 1 to illustrate the growth of the CAD/CAM markets.

The current figures are the latest running totals and may well change before the directories are actually published next spring. The total figure, incidentally, for CAD/CAM products available in Europe, stands at a colossal 3,360.

SURVEY OF CURRENT CAD/CAM SOFTWARE

Applied Research of Cambridge, Wellington House, East Road, Cambridge CB1 1BH. GDS has 97 users, and is a 2-D general purpose drafting system with 3-D capabilities for visualisation of projects. BDS (18 users) is a comprehensive 3-D building design modelling system. Eros (3 users), in an engineering records organisation system: an integrated multi-user, multi-access database system able to handle all classes of information.

Calma (UK), Beech House, 373-399 London Road, Camberley, Surrey GU15 3HR: GDSII (1,200 users), is a modular package that carries design through to production, with detailed drawings, artwork generation and NC machining data being automatically produced. DDM (250 users) is a design, draughting and manufacturing system, providing the user with the capability for both 3-D and 2-D geometric construction. DIM 1[1] (50 users) is Calma's product for the architecture, engineering and construction industries. It has most of the standard features, but also includes its own high level language to allow users to streamline procedures for maximum productivity.

Counting House, Counting House Computer Systems, Farnham House, Fornham St Martin, Bury St Edmunds, Suffolk IP31 1SR: GNC Plus (130 users), is a graphical NC part programming system which may be interfaced to CAD systems. Facilities complete graphical simulation of most NC/CNC machining operations, 2 and 3D, including turning, milling and drilling. Licensed and supported by Counting House Computer Systems on Prime computers. Also available through Camline network. GDS (100 users) is a 2½D general drafting system marketed by Counting House to mechanical engineers. Optional interfaces to 3D solid modelling design systems, to GNC Plus, and to Material Control suite. IBS (20 users) is a range of core software suites which may be linked to suit user requirements. The suites, available separately, include Material Control, Manufacturing Control, Financial Accounting, Payroll, and Job Costing. All are supplied on Prime computers and may be interfaced to the Counting House CAD/CAM systems.

Gould Electronics, Gould SEL Computer Systems, Raffety House, 2-4 Sutton Court Road, Sutton, Surrey SM1 4SY. Grafic/32 (30 users) is 3D solid modelling for mechanical design. Track 4 (2 users) is for PCB design.

Harris Systems, PO Box 27, 153 Farnham Road, Slough SL1 4XD. Ansys is a large-scale, general purpose finite-element program that solves several classes of engineering analysis problems. Anvil-4000, claimed by some to be the most comprehensive and advanced CAD/CAM software package available to industry today, provides an Integrated design, management information and manufacturing system, allowing engineers to automate the design and manufacturing process. Patran-G is a general purpose, interactive graphics pre- and post-processor for the construction, display and editing of 3-D finite element models. Numbers of users for these three packages are not available.

Jeotech Services, Nordley, Bridgnorth, WV16 4SU. Digitmaster (31 users) is a 2D draughting package capable of creating, merging and originating predefined sub-units so that they may be used for rapid build-up of composite drawings. The system has a powerful and extensive dimensioning facility which enables it to be successfully used for professional construction of mechanical as well as schematic drawings.

McAuto (UK), McDonnell Douglas Corporation, Crown Life House, Woking, Surrey GU21 1XW. Unigraphics (330 users worldwide) is a powerful 2-D and 3-D design, draughting and engineering analysis application used on DEC and DG 32-bit computers for integrated CAD/CAM. Designs created in Unigraphic can be graphically machined and post-processed for manufacture on NC machine tools. Unisolids is an outeractive CSG and B-REP solid modeller. Place is an outeractive robotics work-cell design and animation applicatioo.

Ove Arup & Partners, 13 Fitzroy Street, London W1P 6BQ: Cadraw (14 users) is a 2D draughting system evolved from the building industry for the building industry and associated support industries.

Pafec, Strelley Hall, Strelley, Nottingham NG8 6PE: Dogs (130 users) is a general purpose computer-aided design and draughting system. It is machine transportable, being available as software only or as a complete turnkey system. It combines ease of use with features such as parametric symbols, properties (a non-graphical database), and an archive for merging drawings and drawing management. Pafec/Pigs (196 users) is a comprehensive finite element system, giving 3-D linear and non-linear analysis. Data preparation is perhaps the simplest of all such finite element codes, as it employs free format input using engineering key words. It includes mesh generation facilities, data validation, and interactive graphics among a total of more than 80 elements that include large deflection, modes and frequencies, dynamic response, creep, plasticity, heat transfer, cyclic symmetry, boundary integral equation, substructures and hydro-dynamics. Boxer (22 users), is a 3-D solids modelling system. The user interacts with Boxer by creating objects and assemblies from 3-D primitives using Boolean operations. Perspective and orthogonal views can be produced automatically with optional hidden line removal. Volume and centroid calculations and sectioning of an object with any other body are produced quickly with high accuracy.

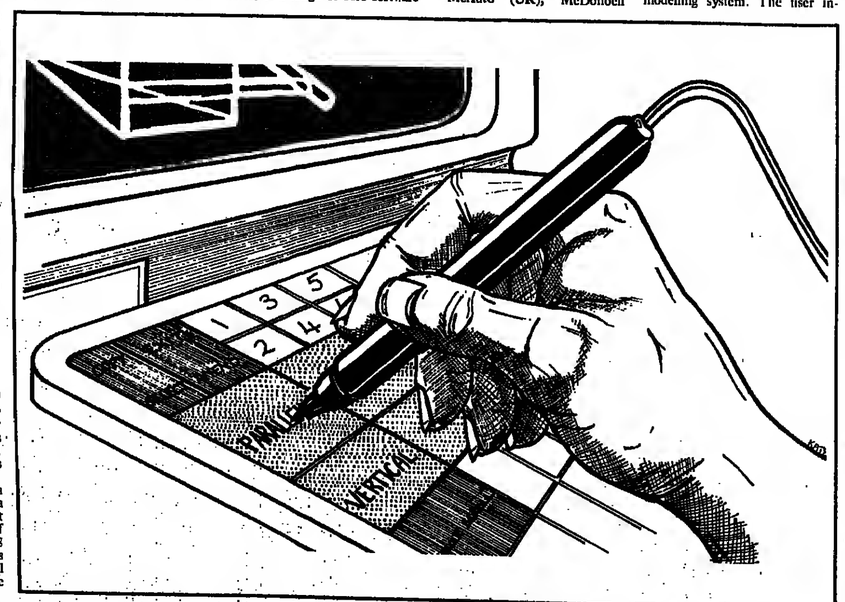
Prime Computer (UK), 6 Lampton Road, Hounslow, Middlesex TW3 1JL: PDMS stands for Plant Design Management System. This a 3-D process plant design system featuring part libraries, logical connectivity, auto alignment, parts listing, hidden line removal and piping isometries. EDMS, Electronic Design Management System, is an integrated relational database system for the design of integrated circuits and printed circuit layouts. Logia is a computer aided process planning system that builds engineering databases, defines logic programs, and applies logic, time standards and work analysis methods. It generates detailed manufacturing instructions, estimates, and output for CAM systems. Numbers of users for these packages are not available.

Shape Data, 2 All Saint's Passage, Cambridge CB2 3LS: Romulus 2 (55 users) is a system for the mechanical and industrial designer. It is based on a solid geometric modeller, and enables the designer to create 3-D components interactively.

Tangram Computer Aided Engineering, 5 Siddeley Way, Royal Oak Industrial Estate, Daventry, Northants NN11 5PA: Swift (5 users) is a general purpose interactive design and draughting system in which users can define their own menus. It provides extensive geometry modification and manipulation facilities to minimise redraws and maximise productivity. PS2000 (6 users), is a general purpose part programming system that allows interactive geometry definition, database description, interactive machine sequence definition and cutter location verification. It can be used for most modern machine processes, such as milling, drilling, turning and nibbling. MIT (4 users) stands for Machine Interface Terminal. It is not strictly a software package, but does allow CAD/CAM and production control software to be linked directly with manufacturing. It also monitors the performance of machines, jobs and operators so that up-to-date information from manufacture becomes available to all departments in the company.

Terminal Display Systems, Philips Road, Whitebirk Industrial Estate, Blackburn, Lancs BB1 5TH: Wand (60+ users in UK) is an interactive software package specifically designed to support the entire range of Megatek Wizzard 1600, 6200 and 7200 series graphic displays. Template (5 users in UK) is a Megatek device independent software package for CAD graphics applications.

Wooton Jeffreys & Partners, Cemetery Pales, Brookwood, Woking, Surrey, GU24 0BL: DDS is a fully interactive computer system with combined word processing and 2D drawing capabilities. It is designed to minimise the work and time involved in the production of documents and drawings which combine textual matter with drawings.



	Total Products 1982	Total Products 1983	% Increase
Business graphics	160	350	118
Graphics peripherals	640	1000	71
CAD/CAM software	700	1200	153
CAD/CAM turnkeys	65	165	78
Total CAD/CAM	765	1365	73
Total market	1565	2710	

Table 1

How to control a world you can't always predict.

Cullinet's integrated manufacturing software.

Cullinet has a software system that provides manufacturers with the one thing they could use more of: control.

A Cullinet Manufacturing Software System consists of eight applications from Master Production Scheduling to Shop Floor Control. They can be purchased separately or as a completely integrated system.

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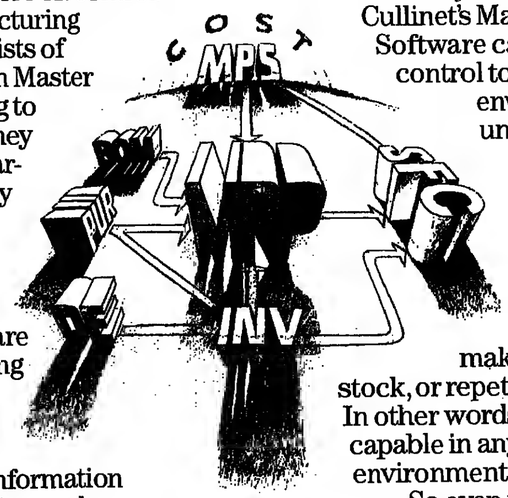

A very flexible system, Cullinet's Manufacturing Software can bring high-level control to any manufacturing environment however unique or personal your individual style and approach. It can provide single or multi-plant controls. Control for process manufacturing, make-to-order, make-to-stock, or repetitive manufacturing. In other words, it is equally capable in any manufacturing environment.

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SOFTWARE MONTH

Mail is partner in an electronic marriage

David Ferris argues that micros are likely to enhance electronic mail's appeal

David Ferris is managing director of Ferrin, which provides personal computing services to the in-house computer professionals of large organisations. Based in London, its offerings include training and study reports on word processing and electronic mail.

AN interesting marriage is taking place: electronic mail and personal computers are turning out to be well matched.

On the one hand, electronic mail has been growing steadily since its Arpanet inception in the mid-70s. The technology has been one of centralised minis and mainframes talking to each other, and dumb terminals.

On the other hand, personal computers have gradually become more gregarious, wanting to hook up with each other. Direct connection is often too much of a bother, and surveys of personal computer usage show micros beginning to use electronic mail for communications.

The result is a potent mix: electronic mail with actively participating intelligent workstations.

This is a significant improvement over customary dumb terminal-based systems. Further, the communicativeness of micros is increased rapidly – "explosively" is the usual term – so we expect the marriage to give electronic mail substantial new impetus.

The reason electronic mail is attractive to micros is simple: the most common case is where a user has developed some kind of report. This could be a table of figures, such as a budget developed on a spreadsheet, or – most commonly of all – a document prepared on the user's word processor. The user wants to send this to someone electronically, to cut down on the delays of postal delivery.

So telephone lines are used, with asynchronous software and modems. For most end-users, configuring the communications equipment and software is a nightmare, and needs professional help. And when this is done, phoning up the other micros directly loses a lot of appeal.

It turns out to be too much effort to ensure that the other machine is ready, willing, and able to receive its mail, and then actually send it.

This is where electronic mail comes into its own, mainly as a store and forward facility. It's much easier to call up your always available system, and download the report. The rest you don't have to worry about. The software holds on to your report until the other micro is ready; then the delivery is made.

How will large organisations implement electronic mail? I think there are a variety of ways to cut the technological cake, the first being to distinguish between in-house and common carrier approaches.

In-house amounts to buying a standard package. There are quite a few viable sources here. Among my company's clients, ADR's E-Mail and BL Systems' Comet are leading contenders. There is a wide choice available to suit most hardware appetites, from IBM's Profs system for mainframes, down to local area network implementations such as that available from Zynar.

We suspect many companies will end up with hybrid implementations, with multiple different electronic mail systems in use. Where possible, in-house voice and data communications networks will be used instead of public networks.

Those that can't afford, or don't wish to implement in-house systems can turn to public offerings. The two main UK services are Telecom Gold, and BL Systems' service bureau version of Comet.

Large companies can find in-house systems attractive for cost reasons, but they still should not ignore public electronic mail. After all, corporate staff don't just communicate with colleagues, they also communicate with outsiders. In many companies personal computer users will end up with two accounts: one on the in-house system, and one on a common carrier.

My company's own system illustrates the advantages and problems fairly well.

We have been testing it for the transfer of reports between our geographically distant staff, especially between San Francisco and London. For electronic mail, we use Dialcom in the US, and Telecom Gold in the UK. These two are particularly attractive to us, because they are both participants in a worldwide network of Dialcom-based systems which is gradually being built.

To minimise compatibility problems, which are legion, we use the same brand of micro at both ends, in our case the IBM PC.

Hooking into the system usually needs a phone call via a packet switched network. In the US we use Tymnet, and in the UK, PSS.

So suppose a document has been prepared in London using a word processing package on the IBM PC. It then typically takes about 10 minutes of clerical time to transfer the document to Telecom Gold. In a short time – around five to 10 minutes – this is then automatically transferred to the correct Dialcom processor in the US, after which San Francisco staff can pick it up at their convenience.

Again, downloading typically takes about 10 minutes of clerical time. The whole procedure is obviously much quicker than fast mail. It's also cheaper.

So what is the outlook for the DP department? To think electronic mail is likely to catch on among a lot of corporate personal computer users, but they will need a lot of hand-holding. This is most naturally provided by corporate computer professionals, the data processing department in particular.

For example, setting up and maintaining our configuration required getting the right expansion package parameters set, converting document files into a form capable of asynchronous transmission and then back again, learning obscure commands which allow the transmission of special word processing characters and character sequences, and handling intermittent packet network problems.

Clearly, these kinds of difficulty require a lot of careful attention to detail by technical staff who understand telecommunications.

New concepts in CAD

■ From page 21

mention to the microcomputer market. So far, it effectively covers CAD only – but who knows in the future? Mike Bayfield, founding director of Interactive Graphics, believes there are many companies which need CAD/CAM facilities but cannot afford the large systems necessary.

"Many of the current micro-based CAD applications suffer from performance limitations, since hardware that may be sufficient for business applications is not adequate for the number-crunching requirements of effective CAD work.

"At present, the market is waiting for the arrival of 32-bit micros with suitable working software, and when this happens there will be a stampede to move the proven CAD software from the powerful minis and mainframes down to the new micro systems.

"In the meantime," he continued, "Interactive Graphics is providing an interim solution with its own bit-slice processor coupled to a CP/M microcomputer." This graphics processor was designed so that CAD software developed during the last 10 years or so by British Rail could be moved straight on to it without change.

"Overall, it has provided mature CAD software with the required level of performance, but on a system that is compatible with the vast CP/M applications library – and all of this for a cost of little over £17,000 on a hard disc micro."

Hytech Consultants is also part of the micro market. We asked Ron Lee, managing director, if he thought that cheap micro CAD systems such as Interactive Graphics' Brightpad and his own Microvice Designer might not lead to mass unemployment among draughtsmen.

"No," he replied, "because there is already a shortage of good design draughtsmen even in today's recession. Our experience is that companies use CAD systems to improve the service offered and the quality of work rather than to cut down on the number of draughtsmen."

So we levelled the suggestion that a CAD system can only be as good as the programmer, a discipline that is surely much different from that of the draughtsman.

"This assumes that there is a reduction in the level of skill necessary to use a CAD/CAM system. It also assumes that a programmer is less of a craftsman than a design engineer. Both assumptions are wrong. A computer system is unable to provide any design input, it is simply an aid.

"The designer's knowledge, flair and skills are still required – but he also needs to learn the new techniques of designing with a computer for an assistant."

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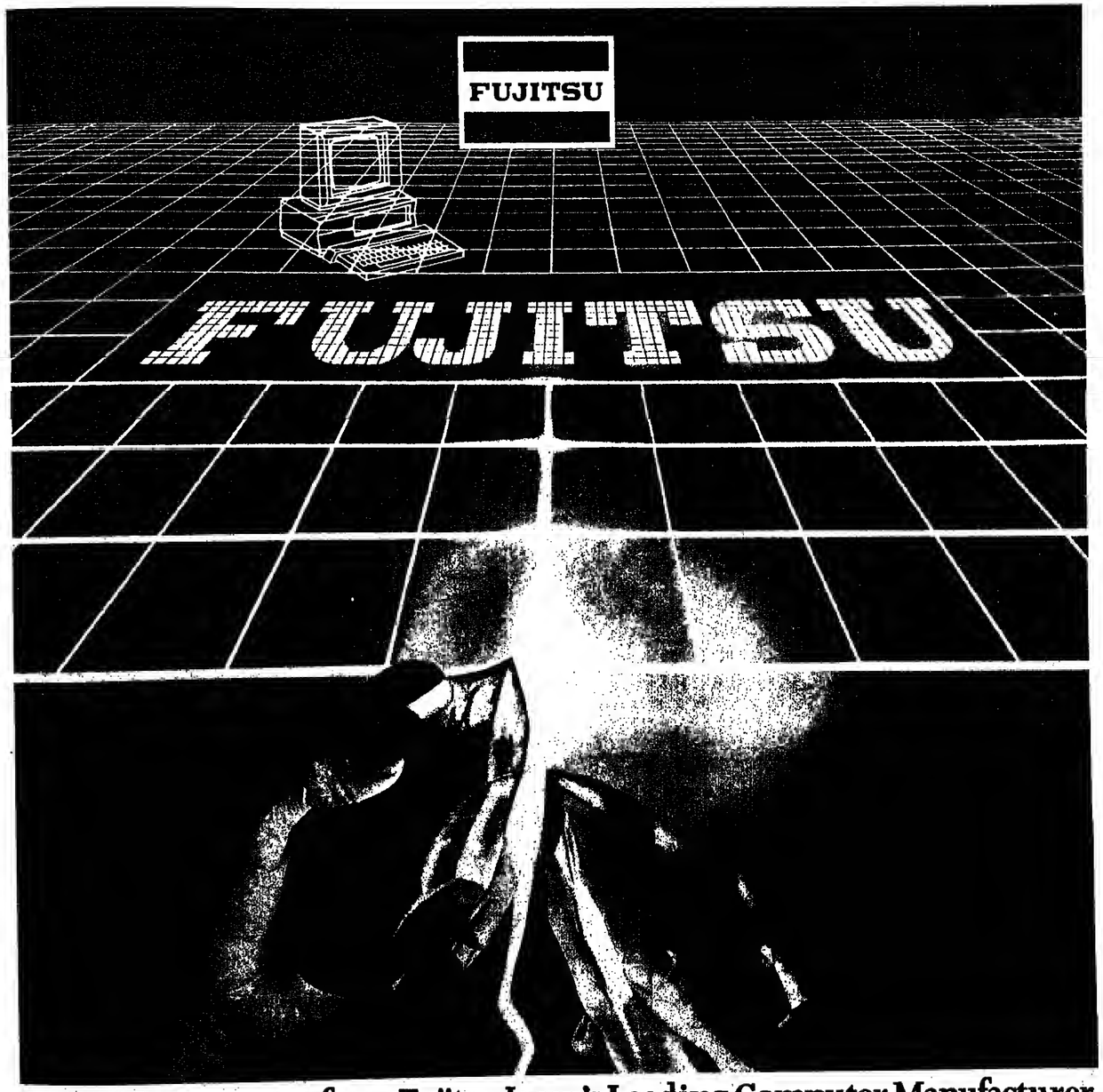

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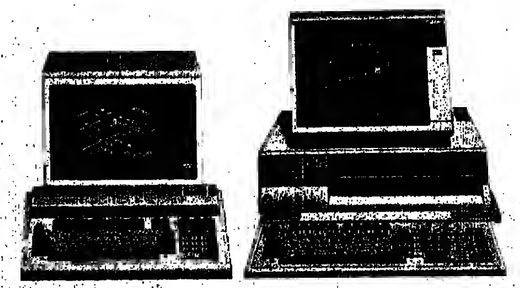

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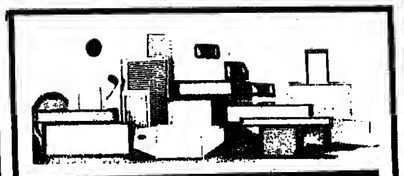

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Applicants should have a proven record in technical software design and implementation, and specific experience with any 3 of:

- *68000 ● C, Pascal ● X.25*
- *Local Area Networks ● UNIX, VMS.*

Software Support Engineers to £10,000 + car

To be responsible for the installation and maintenance of our software products at customer sites.

The position will involve liaising with customers at all levels, so good communication skills are essential.

In addition applicants should have at least 2 years' experience in the data communications field.

Camtec is a wholly British, wholly independent manufacturer of terminal concentrators, inter-network gateways, and computer interfaces, based in Leicester.

As one of our more prosperous provincial cities, Leicester has a strong tradition of support for the arts and provides excellent sporting facilities. Being close to the M1 and M69, fast communications throughout the UK are possible, and local housing prices are extremely reasonable, with 3 bed detached houses from around £25,000.

In its 3 years of existence, Camtec has established itself as a leading light in the data communication market and we are now seeking to consolidate our position by creating these important posts. This is an opportunity to join a dynamic and creative company with excellent career prospects working in a rapidly expanding field.

Applicants, male or female, should have a degree in an appropriate subject together with around 5 years' relevant experience. Relocation assistance will be given where appropriate.

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Already equipped with 3 large mainframes including an ICL Atlas 10, one of the most powerful 'IBM architecture' processors available, we are currently preparing for the installation of a 4th large mainframe early in 1984. Our systems are running under MVS, CICS and DL1 at two principal computer centres in London and Stevenage linked by a digital Megastream circuit capable of handling 2 million bits a second. Radiating from these two centres we are now implementing a countrywide communications network designed to service the total company requirements, making use of branch computers, laser scanners, minis, micros, office automation and information centre facilities. The technical demands are enormous and immensely stimulating.

Work has begun on many systems, and indeed is now well under way on some, but there are still splendid opportunities for the right people to join an accomplished team to help make it all happen. Specific opportunities are listed here but anyone who feels that they might be able to contribute in other areas is warmly invited to get in touch with us.

Systems Programmers
From £12,500-£16,500

Our priority need is for systems programmers who can bring in-depth experience of MVS/CICS/DL1/DMS/ACF2 etc, though applications from candidates with less experience but the right potential will also be welcome. Ref. SP/1.

Operations Analysts
Earnings up to £12,000

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Production Staff
Earnings £10,000-£13,000

We are looking for experienced staff with a wide variety of specialist skills to work in the Production area ranging from Network Control to Capacity Planning and from Training Development to Contingency Planning. Ref: PS/3.

All posts offer excellent benefits, including: ● interest free season ticket loan: ● subsidised restaurant: ● profit sharing after 2 years' service: ● share option scheme after 3 years' service: ● pension scheme: ● relocation assistance where appropriate.

If you are interested...then please telephone Leslie Thompson, Recruitment Manager on 01-921 6576 for an application form. Alternatively forward a detailed c.v. to him at J. Sainsbury plc, Wakefield House, Stamford Street, London SE1, quoting the appropriate reference number.

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Applicants for this new appointment must be able to demonstrate a wide range of experience of IBM systems software, preferably gained in a large scale, on-line or real time processing installation. They must be particularly skilled in effectively managing or supervising a developing technical environment.

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Please send a CV, or write or telephone ANTHONY SPURR, Manager, Executive Selection Division, at the address below, quoting reference number GW1175.

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(6782)

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These duties will allow the operator to gain experience mainly in controlling and operating the work of the computers but also in using programming languages, job control language etc.

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Application forms may be obtained from and should be returned by 20th December 1983, quoting reference number DL/836 to The Personnel Officer, Daresbury Laboratory, Science and Engineering Research Council, Daresbury, Warrington, Cheshire WA4 4AO

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(Salary £11,382-£12,417)

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The new post of Computer Manager will be responsible to the Director of Finance for advising on the planning, development and implementation of all applications, working closely with various council directors, together with control of the existing computer operations section.

Applicants should have had almost three years' programming experience, preferably in COBOL and at least two years' systems analysis/design experience preferably on interactive multi-programming systems.

The successful candidate will be required to have proven ability to communicate with all levels of staff and user departments. Local authority experience, though not essential, would be an advantage.

Application forms and further particulars may be obtained from the Personnel Officer, Council Buildings, Haddington (Tel: 062082 4161 ext. 258), to whom completed forms should be returned by 13th December 1983. Canvassing in any form will disqualify and candidates must disclose if they are related to any member or senior officer of the council.

(6729)

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To join a small team working on the development and integration of Ada based software tools and techniques.

The successful candidate must be innovative and have the ability to undertake feasibility studies, design, implementation and to liaise effectively with customers. He or she will have previous experience in at least some of the following:

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Herts. £9K-£13K

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Projects Manager
Surrey £15K-£18K

A small, expanding systems house specialising in real-time/technical, mini/micro based projects requires a software person with a background from a similar environment to manage a number of projects. The successful applicant will work closely with directors of the company and be capable of reviewing specs. and schedules and providing guidance on remedial action when necessary.

PRIME Analyst/Prog.
London to £15,500

A major oil company with Prime mini computers is seeking an experienced analyst programmer to join a small department which is developing applications in Fortran and making extensive use of INFO. The ideal candidate will have good analytical skills and scientific/modelling applications experience. This is an ideal opportunity to develop your career in a financially sound market area.

S/W Product Support
to £25K
Herts/Germany/USA bases

Genuine high rewards if you can meet this tough specification. 5 years MVS systems programming, SAS and assembler proficiency, in depth knowledge of internals TSO, CICS/IMS. Identified as one of the 500 fastest growing private companies in the U.S.A. our client's performance measurement and monitoring packages are installed in hundreds of major installations worldwide. 10-20% international travel.

Comms. Networks
Herts/London to £20,000

A major telecommunications project which will be serving civil and military users in the 90's is providing challenging and varied opportunities now for designers (software and hardware), project leaders, consultants who have background from voice and data switching, packet switching, network management, data base management, OSI, office automation etc. Reloc. assistance where necessary.

Systems Designers
Herts. to £14,000

Software engineers and electronics engineers are required to participate in major new product developments in communications, office system products and L.A.N. applications. Previous experience is only confined to technical applications. The primary requirement in this company is a positive attitude and a desire to succeed. The company has an excellent program of internal training. Relocation assistance.

Real-time Software
S. Coast to £15,000

If you are attracted by the best development facilities, some of the most advanced applications in communications and information systems and an attractive location on the south coast please contact us for an introduction. Our client will expect previous experience with DEC minis or Intel micros. Programming skills in MACRO 11, RTL2, CORAL would be ideal. Reloc. assistance where appropriate.

Micro Assembler
Berks. £8K-£14K

We are seeking several bright, assembler level programmers to work on compiler or O/S linked application projects. You could choose between providing support to OEM customers, adding new facilities to existing products or compiler development work. We would wish to see relevant experience including 8080/86 assembler. Computer Science, Maths or Physics graduates preferred. Relocation assistance where necessary.

Micro Electronics
Herts. to £14,000

Electronics designers who can demonstrate an in-depth awareness of the application of micro processors to real-time technical problems will find challenging projects and long term career prospects with this client. Candidates will work in small teams on current and new projects. Knowledge of Intel 8088 and some programming skill would be useful. Reloc. assistance where appropriate.

Open letter to experienced computing staff seeking new opportunities

Our free service to you is advice and assistance in identifying the most suitable new position for the development of your career. Our consultants have held a variety of responsible positions in the computer industry. With this experience and their knowledge of the job market they are available to help you. The advertised vacancies are only a representative sample of the many that are regularly registered with us by our clients. Write or call us anytime to discuss your ideas.

Write or telephone **(02403) 28383** *during office hours.*
We are always ready to discuss these and many other interesting positions.
Evenings and weekends only:
Terry Harvey – Great Missenden (02406) 4705
Brian Coates – Chesham (0494) 785722
John Barker – Hyde Heath (0494) 783096

(6768)

HR

H. R. Associates Limited

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HR

WE'VE GOT WHAT YOU'RE LOOKING FOR!

PROGRAMMERS & ANALYSTS
to £9,500 CENTRAL LANCS

Innovative DP Dept of a successful commercial company using IBM mainframes, COBOL, CICS, DL1 COPICS, etc.

PROGRAMMERS & ANALYSTS LIVERPOOL
Respectively to £10,000 & £12,000

HONEYWELL installation using COBOL. Programmers must have on-line and Database, and Analysts should have Business experience

RSX SPECIALISTS LIVERPOOL
to £12,000

New team about to be formed to work on automatic warehousing applications using CORAL 66 on PDP II hardware under RSX.

SENIOR SYSTEMS & S/W PROGRAMMERS LIVERPOOL
c£11,500 (under review)

ASSEMBLER is a must for these challenging positions with a major commercial company who use IBM mainframes. Graduates with AT LEAST 3 years experience.

SYSTEMS ANALYST & DP STAFF
c£9,500 LAKE DISTRICT

Ideal location offering genuine career potential to Systems Analysts who have good SA experience on any hardware Company use a wide range of equipment and are particularly interested in applicants with manufacturing, distribution or retail experience.

ANALYSTS & PROGRAMMERS
to £12,000 MANCHESTER

A retail or business background and 3 years experience of COBOL on ICL mainframes is essential. Applicants who have a year's VME experience will be particularly welcome.

ANALYSTS & PROGRAMMERS
c£9,500 SOUTH WIRRAL

This well known company are offering good career moves for either Analysts, with a good business background (preferably data analysis & production control experience) or Programmers with 3 years COBOL and ideally CICS & DL1.

IBM SPECIALISTS LIVERPOOL MANCHESTER
to £14,000

Systems Analysts, Programmers, Project Leaders and Technical Specialists required for a variety of projects throughout the North. Any of CICS, DL1, TOTAL, SYSTEM 38 and COBOL on IBM mainframes an advantage.

SYSTEMS PROGRAMMERS
to £12,000 S. MANCHESTER

The DP Dept. of this Chemicals company has an urgent requirement for an additional Systems Programmer with IBM, PL/I, CICS and DOS/VSE.

PRE & POST SALES/CUSTOMER SUPPORT BIRMINGHAM
to £10,500 + car allowance MANCHESTER

IBM Comms knowledge and fluency in COBOL are needed for this Systems House where the main applications are accounts, invoicing and production control. Applicants must be presentable and car owner /drivers who can write specifications and amend packages.

PROGRAMMER/ANALYSTS
to £10,000 MANCHESTER

This systems house prepares financial packages for building societies and have a requirement for owner/driver P/A's who can program in COBOL and who will be prepared to spend periods of 6 weeks at a time anywhere in the UK. Hardware is TI.

PROGRAMMERS & ANALYSTS
to £10,000 MANCHESTER

Programmers will need either PL/I or COBOL and a minimum of 2 years experience for positions within this large company. Whilst Analysts should have a proven record of work on both batch and on-line systems.

Contact JOHN LEVINS or GARY SMITH on (0532) 455911 during office hours or JOHN LEVINS on (0532) 785825 evenings and weekends, or write to the address shown right.

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SENIOR ANALYST PROGRAMMER
to £10,000 WEST YORKSHIRE

This high technology company currently uses an IBM SYSTEM 34 but plans to upgrade to a 36 shortly. A good Analyst/Programmer is now sought to take charge of several major developments. A GSD background is essential as is strong Business/User experience.

PROGRAMMERS WEST YORKSHIRE
to £9,000

You will need a minimum of 18 months IBM COBOL for these positions on a rapidly expanding 4300 site. Experience of CICS or DL1 or MANTIS is also sought and you can expect to enjoy rapid career progression.

PROGRAMMER SHEFFIELD
c£7,500

An ASSEMBLER Programmer with a background on any hardware is sought by this major manufacturer which is developing real-time financial systems. Prospects for advancement towards Analysis and Customer Support are excellent.

PROCESS CONTROL PROGRAMMER LEEDS
c£8,000

A major group with a heavy commitment to real-time manufacturing control applications are now seeking an additional Programmer with strong expertise in this area. You will need sound FORTRAN and ideally will have experience of RSX11M.

PROGRAMMERS LEEDS
SENIOR PROGRAMMERS
to £11,000

Programmers at all levels are sought by this major ICL user. A minimum of 18 months ICL COBOL experience is needed for the junior positions, whilst the senior ones require knowledge of IDMS or TPMS

ASSISTANT DATA PROCESSING MANAGER £6 – £12,000 BRADFORD

A small site is now seeking a Programmer with at least 2 years experience of COBOL or BASIC. You will work with a high degree of autonomy and be involved in all aspects of systems development on interactive mini hardware

SENIOR PROGRAMMER HUMBERSIDE
to £9,000

Good IBM experience allied to knowledge of CICS and DL1 is required for this position. This is a senior level position, with supervisory responsibilities, and there will be extensive development involvement on a range of applications.

PROGRAMMER/ANALYST SHEFFIELD
c£8,500

You will need at least 18 months ICL COBOL experience, preferably gained on ME29 machines for this interesting position on a small dynamic site. Exposure to transaction based systems, ideally TME/TP would be an advantage.

ANALYSTS/PROGRAMMERS
to £9,500 + benefits NORTH YORKSHIRE

This major company, a large IBM user, has vacancies at all levels. A good academic background allied to a minimum of a year's IBM COBOL experience is sought. The salary and benefits package is one of the best available

SENIOR ANALYST/PROGRAMMER
c£10,000 + LEEDS

If you have around 3 years BASIC gained in a RSTS environment this company is offering the opportunity to take on Project Management responsibilities. Prospects for further progression are excellent on this rapidly growing site

PROGRAMMER/ANALYST LEEDS
c£8,500 + car allowance

Working in a client driven role you will be involved in all aspects of developing sophisticated mini based systems for this hardware manufacturer. Good programming experience using any high level language is sought as is experience in the analysis discipline.

ANALYST/PROGRAMMER BRADFORD
c£9,500

A strong analysis background is essential for this senior level position on a small mainframe site. The company can offer excellent career prospects to the right applicant.

Contact JOHN MASON or GARY SMITH on Leeds (0532) 455911 during office hours, or JOHN MASON on (0532) 486967 evenings and weekends, or write to the address shown left.

NEW OPPORTUNITIES WITH ARAMCO
TO £23k

The Arabian American Oil Company (ARAMCO) has a number of organisations and departments which rely heavily on the services provided by their state-of- the-art IBM data processing department. PL/1 is the development language for their wide variety of commercial, financial and administrative systems. The diversity and size of such an operation offers tremendous scope for a variety of personnel currently required, namely:-

- Ambitious PL/1 Programmers or Analysi/Programmers with three years' plus experience. You should have a knowledge of OS JCL and TSO. IMS would be an advantage.
- Business Systems Planners who should have an understanding of strategic application planning.

Applicants should have a broad EDP background including business analysis, risk/benefit analysis and experience of dealing with all levels of user management. Mini/Micro experience would also be an advantage.

- Technical Systems Planners with a similar background to the Business Planners but with added experience of equipment/software selection and the integration of such within an office systems and telecommunications environment.

ARAMCO is unique in the Arabian Gulf for the splendid recreational facilities it can offer the expatriate employee and special interest/hobby groups are as far ranging as wind surfing to amateur dramatics. Successful candidates can expect subsidised air conditioned accommodation, free medical treatment, generous holidays and return flights to the U.K. The contract of employment is for an indefinite term, on a single status basis, and the positions require a degree or HND.

These requirements are urgent so act now to arrange an immediate interview in one of our regional offices. Contact Penny Stockton 01-836 8411 or write to her at Computer People London, VLI House, 68 St Martin's Lane, London WC2N 4JS.

Computer People London

MANAGEMENT & EXECUTIVE SELECTION

telephone 01-637 9611
Suite 201/6 Albany House
324 Regent Street
London W1R 5AA

customer-engineers

GRIMSBY

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MIDLANDS

Site E.D.P. Manager

Interesting Career Opportunity – Lake District c.£16,000 p.a. + bonus

Glaxochem Limited is a member of Britain's largest pharmaceutical group and is responsible for the manufacture of bulk pharmaceuticals and fine chemicals for worldwide distribution. The Ulverston site, located in the scenic Lake District, employs 1600 staff and is one of the largest pharmaceutical sites in Europe.

As part of a major new development programme we are seeking a graduate or equivalent, ideally aged early to mid thirties, who has significant experience of systems applications and preferably some involvement in computer operations. Some direct managerial experience is highly desirable, although individuals looking for their first management position would not be excluded.

The challenge will be to manage and develop a small but growing site team, currently eight staff, in the operation of on-going computer systems and the implementation of new applications. A high degree of user liaison and interaction will be involved and a contribution to the total company E.D.P. effort will also be envisaged.

The company utilises Hewlett Packard equipment and knowledge of this would be advantageous, but is by no means essential.

Career opportunities within the company's expanding E.D.P. function are excellent.

The attractive remuneration package includes a significant bonus, non-contributory pension scheme and generous assistance with relocation.

Please write or telephone for an application form, quoting reference 411/14, to: W. K. Bradford, Personnel Manager, Glaxochem Limited, North Lonsdale Road, Ulverston, Cumbria LA12 9DR. Tel: Ulverston (0229) 52261. Please do not send C.Vs.

(6817)

Glaxo **Glaxochem Limited**

TSP

Technical Support People Ltd.

ANALYSTS, PROGRAMMERS, PROJECT LEADERS, CONSULTANTS

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SENIOR SYSTEMS ANALYST WHO IS GOING PLACES — Careerwise and Travelwise!

This is one of those rare opportunities that provides the chance for both creative thinking and getting out and about to give other people the benefit of your skills.

Our client is deeply committed to IBM related systems with considerable emphasis on manufacturing systems. This means exposure to COPICS and MRP within a DOS/VSE + CICS environment, utilising the very latest computing techniques, primarily involving on-line systems and fully utilising the skills of a young and energetic team of specialists.

The person we are seeking will be given broad responsibility for supporting and advising users throughout the United Kingdom, operating from our head office in

THE MIDLANDS

He, or she, must therefore have the appropriate qualifications and human characteristics to both succeed within an IBM related manufacturing applications environment and establish a high level of rapport with senior management at the client user locations.

We wish to provide the best possible rewards for the best possible people and therefore expect to provide a total package valued at

£14,000

Sierra 1.6GL

(including private mileage)

Together with other fringe benefits, including [illegible]

Please provide complete career details to [illegible] quoting reference SDA/123.

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29 Oxford Street,
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SALES TRAINING, MARKET RESEARCH, RECRUITMENT

(6786)

NEW ZEALAND

SYSTEMS ANALYSTS OR SENIOR SYSTEMS ANALYSTS

DEVELOPMENT METHODOLOGIES DATABANK – A WORLD LEADER

Databank Systems Ltd., is unique in its central role of handling the EDP needs of all the New Zealand trading banks as well as operating a substantial commercial bureau operation.

We have developed and operate a nationwide distributed network which links 17 computer centres and hundreds of bank branches. The hardware includes 20 mainframes (ranging from IBM 3083's to IBM 4331 (Group 2) machines) together with numerous mini computers and micro processors. Development activities are concentrated in our head office in Wellington (New Zealand's capital city). Current major developments include the re-development of the basic banking system using the information engineering methodology.

The department for which we are recruiting has the important role of supporting the use of information engineering by the applications development teams. This support is provided through the provision of internal consultants as well as evaluating current practices, tools and aids, and introducing improvements.

Our vacancies will interest those who are already senior systems analysts or equivalents, and who have a good knowledge of information engineering, data analysis or a related structured analysis technique. They will be able to demonstrate a professional approach to technical problems and human relations as well as an ability to think logically and to communicate well.

If you are definitely interested in a career with one of the world's leaders in EDP please air mail a resume to:

**Manager
Staff Services
Databank Systems Limited
PO Box 3647
Wellington
NEW ZEALAND**

Two of our senior managers will be in the UK early 1984 to personally discuss what Databank and New Zealand can offer.

(6830)

TECHNICAL SOFTWARE/PROGRAMMING

Salary £9,000-£11,000

Our client is in the forefront of computer technology and is among the leaders in this field of advanced engineering applications.

Here is an opportunity for you to help expand the frontiers of new technologies. A number of exciting vacancies exist for Software Engineers/Programmers at various levels, who are keen to take this important step forward.

Ideally, applicants should be graduates in Computer Science, Mathematics or a relevant subject, with at least two years' experience in engineering applications on IBM mainframe machines using FORTRAN/TSO SPF.

This well-established company offers excellent prospects. Relocation expenses will be paid where appropriate.

Write or telephone for an application form quoting reference 20/SF.

AMES PERSONNEL

8 CHART WAY, REIGATE, SURREY, RH2 0NZ
TELEPHONE: REIGATE (07372) 22218 or 22210

(6736)

Analyst/Programmer

Wrexham

The continuing growth of Kellogg's six-year old cereal production plant in Wrexham has created the need for an experienced Analyst/Programmer to design and implement new computer-based reporting and monitoring systems.

The plant is linked to an ICL2900 at company HQ and has in-house a DEC PDP 11/34. You will also appraise new minis and micros for possible future use.

Experience of this hardware would be an advantage and you must have programming and analysis experience involving COBOL/FORTRAN and BASIC.

Excellent terms and conditions including relocation assistance.

Contact Janet Roberts,
PER, Halkyn House,
Rhosddu Road, Wrexham LL11 1NE. Tel: (0978) 356575

(6826)

PER Executive Selection

Senior Computer Operator

To accommodate growth within our Computer Services Division we will shortly be moving to a new purpose built computer centre.

As a result of this expansion a vacancy has arisen for a Senior Operator, who will report directly to the Shift Controller.

Based at Leicester the installation operates an IBM 3081/3083 MVS JES3 complex, 3380 disks and 3800 laser printers, supporting CICS/DL1/TSO/ROSCOE and a large local/remote network. A full range of computer services are provided to a number of companies within the Sears Group.

We are a large and successful retailing group and offer excellent conditions of service plus a secure working environment. For applicants of the right calibre and experience we can offer a starting salary of up to £10,000 per annum (including shift allowance) with on shift prospects for those with ability to earn up to £13,000+ per annum.

Ideally applicants for this vacancy will have a minimum of three years experience in a large IBM mainframe environment with at least one years experience of MVS. A sound technical background and a thorough knowledge of JCL and utilities are essential requirements.

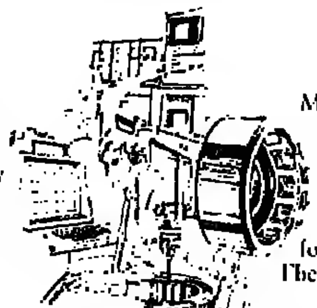
The excellent fringe benefits package includes relocation assistance where applicable and company pension scheme, plus regular salary and merit reviews.

Interested? Telephone for an application form or further information quoting Ref: HO 214, to the Personnel Department.

SEARS MANAGEMENT INFORMATION SERVICES
P.O. Box 113, Sunningdale Road, Leicester, LE3 1UR
Telephone (0533) 878521

(6820) **smis**

The SKF ENGINEERING & RESEARCH CENTRE, based near Utrecht in The Netherlands, is the SKF Group's principal facility for scientific and technological development of rolling bearings and other precision engineered components.



Main activities include new materials and product development and quality and reliability improvements. The Centre with its sophisticated laboratories and well equipped offices, provides a stimulating environment for its young and international staff. The working language is English.

The Data Processing Department, part of Measuring Techniques & Process Control, responsible for all computer operations at the Centre and for assisting SKF Group companies, requires a

Systems Designer/Programmer

The main tasks will be to define for potential users their data processing needs, to specify solutions, design systems, and prepare and carry out implementation.

The job which covers all aspects of data processing from analysis to program implementation, involves working as a member of a project team and/or individual project responsibility.

We are looking for a person who would enjoy working in an international environment and who has the ability to combine technical skills with project responsibility. He or she should have three to five years experience of using Digital Equipment Corporation systems VAX/VMS or PDP 11/RSX, a good knowledge of FORTRAN, and fluency in the English language.

A knowledge of DEC-net, DBMS, DATATRIVE or FMS would be a considerable advantage.

We offer a competitive salary, good fringe benefits and we will cover relocation expenses.

Application forms are available from our Personnel Department. Further information can be obtained from Bo Erdén, Head Data Processing, or Ian Leadbetter, Manager, Measuring Techniques & Process Control.

Engineering & Research Centre B.V.
Postbus 50 - 3430 AB Nieuwegein - The Netherlands
Telephone: 03402 - 32204.

(6788)

SKF

A direct line to the top

5 figure salary
+career progression

SYSTEMS DESIGN ENGINEERS

SOFTWARE ENGINEERS

SYSTEM INTEGRATION & COMMISSIONING ENGINEERS

GEC Telecommunications have all the right contacts

The newly formed Defence Systems Division is geared for expansion and will address a broad range of defence communication projects.

Our immediate requirement is for staff to help create the new integrated defence communications network – PROJECT UNITER.

As part of the expansion we require additional Engineers at a variety of levels from new graduate to principal.

We require ENGINEERS who will formulate technical policy and lead studies in a telecommunications environment. Topics include:

- ★ Switching ★ Transmission
- ★ Data ★ Network Management
- ★ Signalling ★ Computer Control

To be successful you will need a degree or equivalent, ideally with experience in defence projects or telecommunications systems. In joining Defence Systems you should be expecting to gain greater responsibility and to advance your career in a professional engineering environment.

We are offering five figure salaries and the usual big company benefits, including assistance with re-location where appropriate. Around Coventry, you will find sensibly priced housing and first class amenities, with attractive surrounding countryside.

INTERESTED?

Then contact Tony Shuttleworth on 0203-553571 for an immediate discussion or write to the address below giving details of your career to date.

Joan Thorpe, Personnel Department, GEC Telecommunications Ltd., P.O. Box 53, Coventry, CV3 1HJ.

GEC Telecommunications

Analysts & Programmers

If your ambitions match up to our billion pound North Sea oil and gas development programme

Marathon Oil is the operator of the Brae field in the North Sea. A second platform, Brae B, is now being planned to exploit the Brae trend still further and a £1 billion investment programme is under way. Developing computer systems to support plans on this scale offers a real challenge and new information and control systems are vital to the success of the Project.

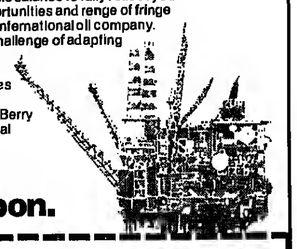
You will be totally involved with development work using IBM mainframes in an on-line and database environment (with VM/CMS/DOS and MVS using ADABAS, COBOL, PL/1, CICS, MARK IV etc) plus a variety of mini and micro-computers. Specifically we need the following people:

ANALYSTS With a minimum of two years' experience. Exposure to ADABAS would be an advantage.

PROGRAMMERS A minimum of one year's programming in Natural is required.

We offer very competitive negotiable salaries to fully reflect your experience, with the long term career opportunities and range of fringe benefits to be expected of a successful international oil company.

If you are prepared to accept the challenge of adapting information technology to meet the requirements of this new North Sea development, discuss these opportunities without delay. Complete the coupon, or telephone Netta Berry for an immediate, confidential discussion on 01-486 0222.



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Send to: Netta Barry,
Marathon International Petroleum, (GB) Ltd,
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London NW1 5AT

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APPLICATION SYSTEMS.....
TEL. NO:.....
LANGUAGES.....
CURRENT EMPLOYER.....
TOTAL YEARS IN DP.....

IDMS — USA

We have a number of requirements for permanent and contract staff in New York and Washington for experienced Programmers and Programmer/Analysts with sound knowledge of IDMS database. Whilst preference will be given to applicants with IBM experience, others will also be considered.

★ ★ ★ ★ ★ ★ ★

UK CONTRACTS

We are currently expanding our U.K. register of contractors and have a number of interesting and challenging assignments for programmers with a minimum of two years' experience. JANUARY STARTS.

Tel: Marilyn Davidson or David Thompson on 01-836 6775

or send a detailed c.v. to the address below.

(6836)

Computer Personnel International
THE SPECIALIST RECRUITMENT SERVICES DIVISION OF COMPUTER SYSTEMS INTERFACE INTERNATIONAL
30-32 Southampton Street, London WC2. 01-836 6775

North Sea Sun Oil Company Ltd. has an immediate opening in its London office for a

SYSTEM ADMINISTRATOR

To operate and maintain a Prime mini computer system linked to other mini and mainframe installations in Aberdeen and Dallas, Texas. The position offers a unique opportunity to a young aggressive operator/programmer to supervise the installation and start-up of this new system, handle all phases of the operations associated with the system, and to develop new software. The successful candidate will work closely with technical personnel engaged in oil exploration and production activities in the North Sea. Applicants should have a computer related academic background and at least one year of direct operating experience, preferably with a Prime system.

A generous remuneration package will be offered with a five figure salary and immediate training in the U.S.A.

To apply for this position, please send a career résumé with details of qualifications and experience to:- J.S. Wagner, Manager of Reservoir Engineering, North Sea Sun Oil Company Ltd., 90 Long Acre, London WC2E 9RA. Tel: 01-836 2468

SUN North Sea Sun Oil Company Ltd.

(6788)

Computer Systems Development

Miss Selfridge, a leading retail fashion chain, is seeking a young computer professional to work on the development of their ADI/ADRS, reports and mainframe systems, in close liaison with their Business Information Manager and Buying/Merchandising teams.

You will probably be either a recent maths or science graduate, with a good knowledge of programming, or an established Programmer, with 2 - 3 years' experience and a knowledge of APL. Good communication skills, energy and initiative are also needed.

We're offering a competitive starting salary, together with a generous range of benefits.

To apply, please write, with details of your experience and qualifications, to: Joanna Farrelly, Personnel Manager, Miss Selfridge Ltd., 21-27 Warple Way, Acton, London W3 0RQ. Tel: 01-743 8080.

Miss Selfridge

Applications Manager Development

We have achieved an unrivalled position in the data communications world market, within a short space of time. To consolidate this lead, we are increasing our investment by recruiting additional skilled professionals to join our development teams. We now need a senior person to manage an expanding team of 25 Software and Hardware Engineers, currently engaged in broadening the application areas of 'Beeline' - our new innovative, electronic mail system.

An experienced Development Manager, you will join a management team working within an expanding environment in the formulation of policies regarding our development programme. The ability to react to demand together with an awareness of marketing viability is therefore essential and your contribution must be backed by up-to-date technical knowledge and a good understanding of our markets.

This is a unique opportunity to exert personal influence on the future of data communications and the future of CASE.

The importance attached to this position is reflected in an excellent remuneration package, which includes a company car, bonus and profit share.

To apply, please telephone, or write, with full c.v., to Maureen Greaves, Personnel Manager, at:

CASE Computer and Systems Engineering PLC, Caxton Way, Watford Business Park, Watford, Herts. WD1 8XH. Tel: (0923) 33500.

SOFTWARE ENGINEERS ICL CO3

Data Communications

South Coast **£10,000-£12,000++**

Do you want to be associated with a company who will double their growth in the next 12 months? More specifically, would you like to be part of an organisation who will be THE WORLD LEADER in DATA COMMS within the next three years?

Of course you do and we need the skills of the best professionals in the industry, regardless of location, to assist us meet this exciting and very realistic growth plan.

We are looking for an innovative self-starter capable of working on his/her own to manage designated projects.

You will be working on the development of ICL CO3 protocol, therefore a detailed knowledge of this is essential. You should be familiar with ICL front end processors, emulators, terminals, etc. and with real time microprocessors in both high and low level languages.

Our Head Office is based in one of the most pleasant counties on the South Coast and we will assist you to relocate if necessary.

ATA Selection have been retained to ensure the highest standards of confidentiality and professionalism in this recruitment.

Your next step is to telephone ALAN HUSBANDS on 061-832 5858 9am-7pm interviews will be held in your local area

ATA COMPUTER RECRUITMENT
86 Cross Street, Manchester M2 4LA
(Out of hours answering service)

(6809)

ata

Programmers DG MV8000 London or Scotland

Call us today To find out more

Contact Sue Buchan
Brentwood (0277) 265755 (24 hour answering service),
Tangent Computer Services Ltd.,
Fairfield House, Fairfield Road, Brentwood, Essex CM14 4LR

tangent

(6844)

SIX OF THE BEST

TRAINING-ORIENTATED CONSULTANT

LONDON-based **£ Commensurate with experience**

This International Computer Services Group are seeking a TRAINING-ORIENTATED CONSULTANT with at least 7 years practical experience in the STRUCTURED TECHNIQUES of analysis, design and programming at the detail level. Familiarity with a range of PACKAGED METHODOLOGIES such as LSDM, Method 1, Prompt II, Strads, etc. is desirable. Evidence of successful MANAGEMENT in the project environment is essential.

Reference: JC/4

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Reference: LJ/2

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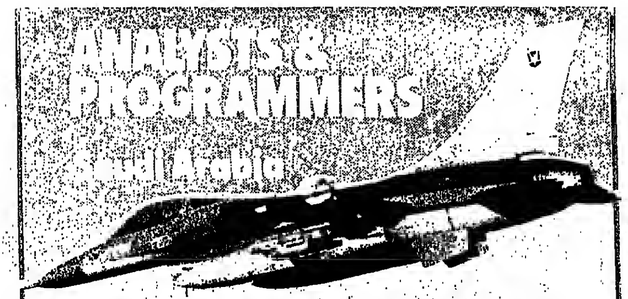

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NOTTINGHAM

We are TecQuipment Consultants Limited, highly successful and an approved microprocessor applications consultancy under the Department of Industry MAPCON scheme. We provide design and consultancy services to Industry and Government.

Due to the expansion of our systems activities, particularly in the area of simulation systems, we now wish to augment our team by recruiting a young Software Engineer to work on the development of hardware and software packages.

The successful candidate will be fluent in both FORTRAN and PASCAL, with familiarity of UNIX operating system being advantageous, have around two years plant/process control experience and be capable of handling a project from specification to implementation. Equally important is the ability and confidence to liaise with customers at all levels.

Our standards are high, but we are quick to identify potential and short and medium term prospects within the Company are excellent.

In the first instance, please contact our Advising Consultant, **Jim Mitchell**, on **021-236 3781** (24 hour answering service) or 021-455 7653 (evenings and weekends until 9.00 pm).

Technical, Sales & Management Appointments

Specialist Computer Recruitment Ltd

SOUTH: James House, 46 James Street, London W1M 5HS, 01-935 0671/486 0481
MIDLANDS & INTERNATIONAL: 35-37 Great Charles Street, Queensway, Birmingham B3 3JY, 021-236 3781
NORTH: International House, 84 Deansgate, Manchester M3 2ER, 061-833 0427
BELGIUM: Avenue Louise 327, Bolte 4, 1050 Bruxelles, 010 322-640 7181/71
HOLLAND: Willemsparkweg 92, 1071 H.M. Amsterdam, 010 3120-760947

SAFE COMPUTING offer superb packages and software services and employ professional personnel to sell and support them.

The Safe's Overall Fixed Asset Accounting Package and Micro-SaFeS Production Control Package are widely recognised as leaders in their market, and are backed up by the equally excellent Capital Project Control (Beepac) and Sales Order Processing Packages. Its Project Management for Operating System migration and other bespoke projects is continually in demand.

SAFE COMPUTING are committed to ambitious growth and, as a result of the enormous success of its products, has created an exciting and dynamic environment in which ability, creativity and hard work are rewarded in personal growth, as well as financially.

In order to continue this expansion and to reach broader international markets, the sales team is being increased. Applications are, therefore, invited from candidates, who have enjoyed a successful career to date in selling, for the following posts.

Senior Sales Executives
c. £25,000 + Car

Only candidates who have a computer industry background and can demonstrate sales management capability will be considered. Successful candidates will manage an internal sales and support team selling packages and project management services to clients developed, in the main, by the internal sales team.

A basic salary of **£12K to £15K** plus comission will lead to on target earnings of **c. £25,000.** A Company car will be provided, along with other benefits.

Positions are based in Birmingham and Wokingham.

Sales Executives Micro-SaFeS
c. £20,000 + Car

Sales Executives working from prospects developed mainly by external advertisements will sell Micro-SaFeS to a wide market of manufacturing and process control companies.

Although, ideally candidates will have a computing background, those with manufacturing or process control experience who can demonstrate selling ability will be considered.

Successful Candidates will be aged 26–35 and will be paid a basic salary of **£8,000–£10,000** plus commission, which would realise earnings in excess of **£20,000.** A Company car plus other benefits are also provided.

Positions are based in Leicester, Birmingham and Wokingham.

Internal Sales
c. £15,000 Package

The successful candidates will conduct market research, surveys and produce mail shots to identified prospects for the Senior Sales Executive to develop. A basic knowledge of computing is essential, as is professional telephone skills.

The successful candidates will receive a basic salary of **£7,500** plus commission, with potential earnings of **c. £15K.** The exceptional candidate with ability to develop sales may qualify for a Company Car.

INSIGHT Marketing & Personnel Consultants Ltd.

FOR IMMEDIATE INTERVIEW TELEPHONE VIC CANTY NOW FOR FURTHER INFORMATION
021 643 5072 (OFFICE) 0908-676185 (EVENINGS & WEEKENDS)
Warwick Chambers, 14 Corporation Street, Birmingham B2 4RN

Communications Development

Project Leaders
Software Engineers

Berkshire
£8k-15k

An expanding manufacturer of powerful 32-bit minicomputer systems is seeking additional Project Leaders and Programmers/Designers to join its Networking Software Development Team.

The company is committed to providing advanced communications products in the following areas:

★ UNIX/C
★ Local Area Networks
★ X25
★ File Transfer
★ Electronic Mail
★ Remote Terminals
★ Network Control

We are looking for people who want to develop their career prospects and gain valuable experience of networking, UNIX and C, an exciting combination.

Project Leaders should have experience in real-time software design and implementation. This is a predominantly technical position with scope for further managerial advancement. Previous team leadership is desirable but not essential for a candidate able to demonstrate good organisational ability.

Software Engineers should have a minimum of two years' real-time software development experience in a block-structured high-level language, eg Pascal, C, Coral, etc.

Benefits include a competitive salary with regular reviews, internal and external training courses and full relocation package where applicable.

For further detailed information on these positions and the company, please send a copy of your cv or telephone John De La Mere for a confidential discussion.

Ref. CW47

(8821)

DATAMATICS
RECRUITMENT SERVICES
01-399 9183
Datamatics, Freepost, Surbiton, Surrey KT6 5BR

Analysts

Major worldwide development on minis

£14,000 **West London**

"Everything's ready to go in the New Year but we must find two more top class analysts quickly to complete the three small project teams, otherwise they won't be in at the start." That's what the MIS Manager told me last week – if everything clicks after meeting each other next week, you can both have a happy Christmas!

From their modern well-equipped West London headquarters, my client markets and distributes worldwide the films of several of the Hollywood giants. The business is dynamic, sophisticated, growing and profitable. The resultant expansionist mood blends well with their informality and emphasis on results and personal initiative.

You will come straight into a senior role in one of the three teams designing and installing film distribution systems on minis. This means you'll need an applications programming background and at least 2 years good experience of analysis of commercial projects on minis. If you have worked on international developments, that's a distinct plus – as would be any foreign languages. Finally, don't assume you'll seem too young for this level of responsibility – you know you're not.

Make a start by calling **Richard Goldie for an informal chat on (0992) 552552** or alternatively write to me, enclosing a brief C.V., at **Macmillan Davies Personnel Consultants, The Old Vaults, Parliament Square, Hertford SG14 1PU.**

Macmillan Davies Personnel Consultants

(8783)

LARGE MULTI-NATIONAL ORGANISATION URGENTLY REQUIRES A:–

UNIVAC 1100 Senior Analyst

MIDLANDS

UP TO **£14,000** + CAR

Our Clients require a good communicator with a sound technical background who has:-

★ A minimum of 4 years experience with UNIVAC 1100 computers.
★ In-Depth knowledge of 1100 software products and operating software.
★ Experience in system sizing, configuration & performance analysis
★ And preferably knowledge of data communications/networking and applications software.

Besides an assured career path, our clients offer the successful applicant an excellent salary – up to **£14,000** p.a., a company car, generous re-location expenses, plus all the usual large company benefits.

Interested? then ring MIKE SHYNDER now!
061-236 7026 (office) **061-773 6128** (Evenings & Weekends)

INSIGHT Marketing & Personnel Consultants Ltd.
Austin House Charlotte Street Manchester M1 4FL

Logica Logica Recruitment Limited
10 Grenville Place, London SW7 4RW

Telephone 01-373 3063

Real-Time Analysts & Progs
Hants/Berks: Salaries to £12K

Real-time Analysts and Programmers, with at least two years' post graduate industrial experience, are urgently sought by a leading software consultancy. The broad range of projects they undertake, ranging from advanced defence systems through to office automation products, guarantee a varied and stimulating working environment. Your software skills should include substantial real-time programming in a block-structured language and an Assembler, combined with a knowledge of the utilities offered by operating systems such as RSX, VMS or UNIX. For those applicants with man-management experience, or potential, rapid promotion is highly likely. Ref: L/48/A

Graphics Software
London & Home Counties: Salaries to £11K

A number of our clients are involved in the development of increasingly user-friendly interfaces to front-end processors. They are, therefore, looking for Analysts and Programmers with experience of generating tabular, and graphical, device independent, displays. Particular hardware and software skills required include fluency in one or more of PASCAL, C, FORTRAN and MACRO-11 supplemented by knowledge of PDP-11 or M-68000 based systems. Applicants who have developed such systems utilising UNIX will be especially welcome. Ref: L/46/B

'C' & UNIX Programmers
London: Salaries to £10K

A highly respected Product Supplier is currently seeking to recruit several Systems and Applications Programmers to work on its UNIX-based range of products. Applicants, aged 22-26 years, should have graduated since 1980 with a good class honours degree in a numerate subject and have at least one year's commercial or industrial experience. Very recent M.Sc. or Ph.D candidates are also encouraged to apply particularly if their chosen subject matter was directly concerned with UNIX systems software. It is advantageous to be fluent in 'C' programming language and also offer PASCAL as a secondary language. Ref: L/46/C

Technical Authors
Italy: £11K+ Overseas Allowance

An internationally renowned Systems and Software House is currently seeking additional Technical Authors for permanent career positions in Italy. Suitable applicants should have a good educational background and at least 18 months' experience in the design and writing of User documentation for either a software or hardware product. A good command of the English language is essential as is the ability to communicate with both technical and non-technical personnel. Applicants who have participated in the production of a manual for end-Users of an Office Automation System will be of particular interest to our client and will attract a salary premium. Knowledge of Italian would be an advantage but it is not a prerequisite for these positions. Ref: L/46/D

Prolog and Lisp Programmers
London & Home Counties: Salaries to £13K

We have a large number of clients with requirements for Prolog and Lisp Programmers to assist in the development of expert system software packages. At least one degree in a numerate subject or Psychology is essential preferably supplemented by Postgraduate exposure to a real-time environment. Candidates with experience in the following areas will be of particular interest: object-based systems; man-machine interfacing; rule generation; operator aids and fuzzy set theory. Naturally, all our clients offer the most advanced development facilities and, where necessary, will assist with relocation expenses. Ref: L/46/E

Software Q.A.
London and Thames Valley: Salaries to £14K

A market leader in the areas of office automation and informations science technology requires additional Software Quality Assurance Engineers. All respondents, aged 25-35 years, should hold a least one numerate degree and have at least two years' commercial experience with a real-time systems design environment. Candidates are expected to be fully au fait with international programming and systems design criteria. Your actual work content will include the instigation of scheduling and product review methods; the evaluation of in-house software requirements and systems specifications and lastly, participation in the production of new and updated technical documentation. For certain positions, candidates should have project and man-management experience gained in an environment where product delivery and software releases are subject to strict deadlines. Ref: L/46/F

Coral 66 Programmers
S. Home Counties: Salaries to £11K

Applications Programmers and Designers are currently required by the software development division of a leading Systems Supplier. Suitable applicants should offer a minimum of 18 months' CORAL 66 programming experience in a real-time mini-computer or microprocessor environment. Particular hardware experience is not important, but familiarity with PDP/11, VAX Ferranti Argus or the GEC 4000 series would be a distinct advantage. Our client offers an excellent training programme and there will be every opportunity for successful applicants to learn new skills and progress into either a Management or Consultancy role. Ref: L/46/G

Comms Designers
London and H. Counties: Salaries to £18K

A long established Systems House and Consultancy, renowned in the field of Communications, is currently seeking additional Systems Designers. Suitable applicants should be aged 25-35 years and educated to at least B.Sc. standard. You will be expected to have a thorough knowledge of at least two of the following: Communications protocols (X25, SDLC/HDLC) and ISO standards; Office automation systems and networking techniques, systems design and consultancy; familiarity with unix or any UNIX look-alike product. Applicants who have additional knowledge of VAX VMS will be of particular interest to our client. These positions represent excellent opportunities to enhance your skills since our client is undertaking development work utilising the most advanced techniques available. Ref: L/46/H

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(8770)

LWCR

London West Computer Recruitment

Sales Support
W. London, N. Hants — to £14K + car

Leading companies marketing a range of hardware and software products require several software support staff with either a systems programming or sales/client support background. Knowledge of IBM, or DEC VAX, Data General or similar minis, and/or business micros is highly desirable. Re-location assistance. Ref. 1001.

ICL Programmers/Analysts
Berks — £10-17K

Major manufacturer seeks staff at all levels with ICL2900 system software experience for a range of commercial projects. Good knowledge of VME8 and Cobol is essential; IDMS experience is highly desirable. More senior positions require project leading/management experience. Re-location assistance. Ref. 949

IBM Systems Programmers
N. and NW London — £14-25K

Two leading service organisations require IBM systems programmers with minimum of 5 years experience of MVS and TSO internals plus CICS and/or IMS. More senior positions require experience of performance analysis and capacity planning. Excellent opportunities. Re-location assistance. Ref. 997

IBM A/Programmer
N/Hants — £11.5K

Major financial organisation requires analyst/programmer with a good IBM Cobol background and experience of on-line database commercial or financial applications. CICS and DLI experience would be advantageous. Degree standard candidates preferred. First class career opportunity. Re-location assistance. Ref. 658

Write or telephone:
London West Computer Recruitment
Evergreen, Dauntsey, Chippenham, Wiltshire SN15 4JA
Telephone: (0249) 891114

Software Support
Wilts — £7-12K

A computer systems manufacturer requires analysts and programmers for pre/post sales support and software development tasks including communications and graphics utilities. Experience of Basic, micro assembler, 'C' or Pascal is required and ideally knowledge of CPM or UNIX. Excellent location. Re-location assistance. Ref. 981

HP Programmers and Operators
Thames Valley — £ negotiable

Distribution and manufacturing companies require programmers with a minimum 1 year's experience of Cobol and Imoge, and operators with experience of multi HP3000 sites and DS 3000 communications knowledge. Ref. 882

Micro Systems Software
Wiltshire — £ negotiable

Leading state-of-the-art company seeks staff experienced in systems software development for work on operating systems, language compilers and systems utilities for a wide range of commercial microprocessor based machines. Candidates must have degrees and a minimum 3 years relevant experience. Re-location assistance. Ref. 723

Systems 38 A/Project Leaders
Hants/Glos — to £15K+

Vacancies exist in several well established installations for senior analyst/project leaders with commercial, financial or manufacturing backgrounds. Several years experience of IBM GSD machines including 1 year on System 38 is required. Excellent employment packages which in some cases include a car. Re-location assistance. Ref. 1002

Communications Systems
Hants — to £17K

Major company developing military communications and command and control systems requires senior real time software engineers for technical/management positions. DEC, GEC, Intel machine experience is preferred. Good degrees and knowledge of high and low level languages essential. First class conditions. Re-location assistance. Ref. 746

Software Engineers
Oxon. — £ negotiable

High technology company developing microprocessor-driven instrumentation has vacancies on a new software team. Experience in ATE, office automation, graphics, CAD/CAM or similar technical skills is required. Degrees or equivalent qualifications are essential. Excellent salaries. Attractive location. Re-location assistance. Ref. 1000

Process Control
Wilts — to £14.5K

Successful company developing process control applications for public and private sector organisations world-wide are seeking additional staff at all levels. Of particular interest is real time experience on DEC VAX or alternatively PDP 11 running under RSX 11M. Degree/HND/HNC essential. Re-location assistance. Ref. 514

Communications Systems
Midlands — £ excellent

Major company developing communications systems for the defence market seeks software/hardware engineers at all levels with telecommunications experience. A defence background is desirable; degree/professional qualification is essential. Excellent conditions. Re-location assistance Ref. 1003

(8881)

FINANCIAL TERMINALS

Hardware and Software Specialists to £16K

Sperry's International Distributed Systems Centre (IDSC) is a software development centre of 50 professional staff specialising in customised networks and advanced data communications throughout the world. Recently IDSC has become the focal point within Sperry Product Division for the new UFTS600 financial terminal system. The UFTS is a highly sophisticated family of distributed terminals based on INTEL 8086 microprocessors.

These terminals can be connected in a local network, to serve the requirements of front-office and back-office banking functions. The complete branch system can communicate with a variety of host banking computers, using appropriate protocols. The UFTS600 is a key product in Sperry's commitment to the financial marketplace.

We are looking for several hardware and software specialists to work on the systems development and support of this exciting new product. Applicants should be self-motivated, highly qualified professionals with a proven track record in distributed processing and data communications. You should have 3-5 years experience in at least three of the following:

*Microprocessor systems software development, preferably on 8086s
*Networking and handler development (including X21, X25, BSC)
*Architectures (SNA, DCA, ISO)
*Systems quality assurance and support
*Banking terminal systems.

For the hardware specialists, experience of INTEL 8086 based systems gained in a systems engineering or customer field support role is highly desirable.

IDSC is located in an attractive self-contained facility in Central London with easy access from Paddington, Marylebone and Baker St. Stations. All these positions provide a significant opportunity to travel both to the USA and throughout Europe.

Please write sending CV to: Ms. P. Murray, IDSC, 45 Crawford Place, London W1. Tel: 01-402 7221.

SPERRY

DEVELOPMENT PROJECTS LONDON/HERTS BORDERS £8,500–£13,000

As part of a large and exceptionally diversified group, our client has both the backing of a major corporation, and the breadth of experience which comes from handling the computing needs of over 60 diverse companies.

At the heart of their operation is a powerful Honeywell mainframe installation, with over 40 Honeywell L6/DPS6 mini computers supported in the field.

In line with a firm commitment to further expansion and development, a number of openings now exist for highly motivated DP professionals.

Project Leader
This is an opportunity for an experienced analyst who is ready to move into a Project Leadership role. You will lead a team of analyst/programmers in the design, development and implementation of a variety of systems, and should have a knowledge of TPS and Screenwrite, coupled with a flexible and mature approach to hard work!!

Micro Specialist
A solid commercial background, a broad appreciation of business methods in general, plus the ability to configure and install micro based systems are the essential requirements for this interesting and challenging position. As you will be dealing with clients at all levels, you should have good communication skills, both written and verbal.

Analyst: DM4/TP
An ambitious and conscientious young analyst is required. You will join a team responsible for the development and maintenance of a variety of complex systems relating to tracking applications. You will be capable of taking a project through to implementation, and should have a working knowledge of DM4/TP.

Analyst/Programmers:
Honeywell L6/DPS6
The successful applicants will have 2 years or more COBOL experience, gained in a Honeywell L6/DPS6 environment. Enthusiastic self starters are needed, capable of liaising with clients and management at all levels.

For more information about these positions, please contact Liz Jewell on: 01-734 7349 during office hours or on 01-223 0712 evenings and weekends, or send the coupon to Warwick Woodward, Freepost 37, LONDON W1E 6UZ (No stamp required).

WARWICK WOODWARD
A SPAN GROUP COMPANY
43-44 GREAT WINDMILL STREET, LONDON W1V 7PA
TELEPHONE: 01-734 7394
24 HOUR ANSWERPHONE

Please send me an application form ☐
Name
Address
Tel (h) (w)

Computing & Electronics
myriad
Recruitment Consultants

Join the Travel Industry
S.E. London

Our Client is recognised worldwide as a leading Travel Company specialising in the field of package holidays

The business naturally lends itself to sophisticated computerisation as speed, accuracy and reliability of transactions is essential.

One hundred and twenty-two VDUs communicate via a nationwide network to the head office installation which comprises three ICL ME29/45 mainframes plus associated peripheral and telecommunication hardware.

Recent assessment of the company's operational strategy has led to a requirement for two talented personnel:

ME29 Operations Controller
c.£10,000
+ substantial benefits

This vital position provides an excellent opportunity for an operations professional to assume an important role in the running of the department, reporting directly to the Computer Manager.

The successful candidate will assume responsibility for a wide variety of tasks offering technical and managerial responsibility.

It is envisaged applicants will offer: a sound awareness of users/business requirements; ability to motivate and organise successfully; confident communicator at all levels; minimum five years' operations experience with at least two in an ME29 environment.

ME29 Shift Leader
c.£8,000
+ substantial benefits

A minimum of three years' experience including ME29 and TME is an essential requirement for this position.

You will become involved in the supervision and training of staff working a three-shift rota; technical support; telecommunications and considerable dealings with users.

Applicants should be of smart appearance, have proven supervisory skills and be technically well versed in all areas of operations.

★ ★ ★

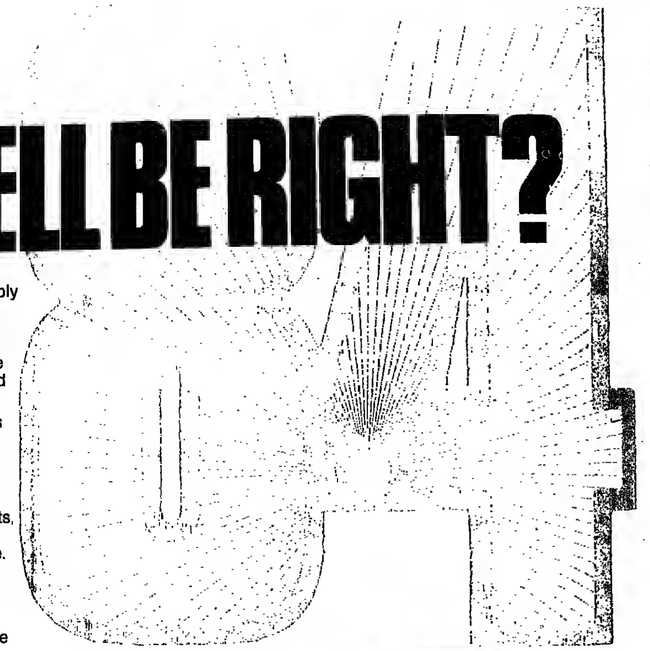
The management style encourages and rewards effort and initiative. Previous experience in the travel industry and TOURPAS on-line reservation system would be considered advantageous but by no means essential. A solid understanding of how efficient computer operations contribute to business effectiveness will be a major deciding factor.

For an initial interview and further discussion regarding these opportunities contact Myriad London quoting reference C4/0112.

(8842)

Computing & Electronics myriad Recruitment Consultants
30 Fleet Street, London EC4Y 1AA
Telephone: 01-353 0961 24 hours
25 South Street, Reading, Berkshire RG1 4QU
Telephone: Reading (0734) 591151 24 hours

NEED ORWELL BE RIGHT?



No–there are always limitless opportunities for forward looking people, espedially in the field of computers. Unquestionably Saudi Arebia is high emongst the worlds most rapidly developing regions. For exemple, our client has mede massive continuous investment in the field of EDP. Currently their State-Of-The-Art computer systems include the IBM series 3033 and 3081 (with the 4300 series for outlying applications) and e wide renge of mini and micro computers.

Within the computer services area' a new human resources system is currently being created. And to ensure the continued success of this long-term commitment, recruitment of computer professionels with the following skills is essential:

Business Anelysts–
with a Mini/Micro background + Future Applications Requirements, Systems Plenning Experience.
or Future Hardware Requirements, Technical Plenning Experience.

IBM Programmers + Anelyst/Programmers+
3 years IBM PL/1 and OS JCL.

Candidates for these vacant permenent positions should be educated to HND/Degree level. They will be rewerded with a complete remuneration peckage which includes benefits covering independent subsidised accommodetion and eutomatic access to an extensive range of leisure fecilities. These cover squash, tennis, TV/Radio, cinema and scube diving. Situated close to the Arablen Gulf where you will find heevy investment hes been made to create a working and community environment considered to be amongst the best in the Middle East.

Sterting detes will be eround Merch end April 1984, elthough you should telephone now for epplication details end further Information. Contact **Caroline Tee on: 01-723 4053 or write to: Comcep Resources Limited, 26 Chilworth Street, London W2 6DT.**

COMCAP RECRUITMENT CONSULTANTS

The need for computer personnel is on-going and if you are not available at present, register now for future opportunities.

ICL COSOL — ESSEX & CITY — TO £10,000
1984 expension plans + exciting development projects = fentestic opportunities for programmers with 12 months + ICL COBOL experience to join friendly team. Great prospects lots of training. REF. DW/3000

SURREY/LONDON/ESSEX/BUCKS/BERKS/ KENT/MIDDX/HERTS/SUSSEX — £EXEC
High rewards including excellent selaries, mortgages end company cars in return for 12 months + ICL 2800/VME skills. IOMS and TPMS advantageous, not essential. Some excellant companies, some outstanding opportunities. REF. DW/2482/5

HONEYWELL — WEST LONDON — TO £10,000
Rewarding career opportunities for professionels with 18 months+ Honeywell COBOL experience. Detebese and on-line experience desirable but not essential as this prestigious organisation offer extensive training feciliies. REF. DW/3042

SOPHISTICATED COMPUTER NETWORKII — SURREY — TO £11,000
IBM COBOL Programmers end Analyst/Programmers. 18 months+ experience. Twin IBM 4331 DOS/VSE VTAM VSAM + CICS, treining givenII Excellent benfits. REF. GW/2487

GRADUATES! — WEST END — TO £11,500
Ambitious gredustes with two years+ IBM COBOL or PL/1 experience, for mejor IBM MVS site, IMS or OL/1 knowledge en edded adventege. Firel class prospects! REF. GW/3081

HOUSEHOLD NAME — CENTRAL LONDON — TO £13,000
Systems Analyst two-three years' anelysis experience, meinly financial, lots of user contact. Strong on accounting systems IBM background preferred. REF. GW/2518

AIMS OR SANKING? — £11,000 + MORT
Top multi-netionel bank. City based. Good OEC benking exp. AIMS an esset. Lots of enelysis. 5% mort + cheap loens. REF. AW/3087

SENIOR HEWLETT PACKARD — TO £14,000
Good HP3000 COBOL background. Prelor enelysis exp. Expending Berks based Co. Menagement prospects. Relocation paid. REF. AW/1488

NEW OEC SITE — £10,500
Expanding new OEC/PDP site Middx/London eree, Good RSTS/E BASIC + exp. All development. Good prospects. REF. AW/2954

SENIOR PROG/DSO — TO £14,000
Middx.-based finence company. Three yeers+ exp, some RPG III on System 38 essentiel. Move into menegement end lead up their teem! REF. CW/2475

ANALYST – MOVE INTO ISM — c. £13,000
Two years+ enalysis end design essential, with some on-line experience, eble to turn buelness needs into system and progrem apece. Any mechine b/ground to join IBM elte. REF. CW/2728

SENIOR PROG/DSO — TO £14,000
Middx.-based finence compeny. Three yeers+ exp, some RPG III on System 38 essentiel. Move into menegement end lead up their teem! REF. CW/2475

ENGLEDOWN • ENGLEDOWN • ENGLEDOWN

COBOL/CICS — N.W. LONDON — £9,500
12 months + IBM COBOL in a DOS/VSE environment to join small team of five people, working with CICS, VM, VSAM, on IBM 4341. Free BUPA/PENSION/LIFE ASSI REF. CW/3820

RPG III — EAST ANGLIA — £9,000 + RELOCATION
Opportunity to join rural manufacturing company. If you heve 12 months + RPG III/System 38 and wish to make use of your detebese design skills give me e call. REF. EW/3074

ANY ASSEMBLER — HERTS/ESSEX — TO £9,000
Ideally you will heve e minimum of one yeer's ASSEMBLER on any IBM meinframe end be ready for e challenge. Well established company offering excellent perks: COBOL en edded advenlege. REF. EW/3080

ANALYST — ESSEX — TO £12,000
Bring your design skills to this well established retail environment running an IBM 4341 and System 34. COBOL programming background definite advantage. All development work. REF. EW/2769

DATA GENERAL — ALL LEVELS — TO £13,000
Mainly London, Herts & Bucks, using COBOL, BUSINESS BASIC or FORTRAN. Several major companies paying top salaries with excellent benefits. REF. MW/3073

DATA POINT/DATABUS — £8-11,000
International company, London based have urgent requirements for good DATAPOINT Programmer/Analysts with at least 18 months' current exp. REF. MW/2917

MINI COBOL/BASIC — LONDON — £8-13,000
Excellent career prospects with this expanding software house using WANG hardware. They have urgent requirements for mature programmers with good mini background using COBOL or BASIC. REF. MW/2914

ANALYST — ESSEX — TO £12,000
Bring your design skills to this well established retail environment running an IBM 4341 and System 34. COBOL programming background definite advantage. All development work. REF. EW/2769

ANALYST – MOVE INTO IBM — c. £13,000
Two years+ enalysis end design essential, with some on-line experience, eble to turn business needs into system and program epecs. Any mechine b/ground to join IBM elte. REF. CW/2728

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COMPUTER PERSONNEL CONSULTANTS
BRUSHFIELD HOUSE, 12 BRUSHFIELD STREET,
BISHOPSGATE, LONDON E1 6AX

TELEPHONE 01-247 3356

DALROTH

SYSTEMS EXPERTS SALES POTENTIAL

Basic £10,500 + Car + Commission
(existing staff earnings exceed £15,000)

SyncSort Technology Limited, with their headquarters in Berkshire, market and support their own products in the UK and Europe. The Company have an established and satisfied customer base for the MVS, VS1, DOS and CMS software products and currently have two vacancies.

For both positions the successful applicants will have a background in any of the following:

★ Systems Programming/Systems Engineering
★ Systems Support/Operations Support
★ Assembler Programming

and ideally experience in OS, DOS and VM/CMS or MVS.

The Company is willing to consider a negotiable package to suit the right individual, and will of course offer full training in their products, both in Europe and the USA.

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- **RPG 2/3** — to £14K — Minimum one and a half years' experience — Leicester/London/N.E.
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ICL 2900 VME IDMSX TPMS COBOL	3 ANAL/PROGS	SOUTH	T.C.
ICL SYSTEM 25 ASSEMBLER	6 PROGS	SOUTH	T.C.
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HARDWARE SOFTWARE	JOB TITLE	LOCATION	REF
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IBM MVS TSO/SPF FORTRAN	PROGS	LONDON	D.V.
IBM MVS IDMS	ANALYSTS	LONDON	D.V.
IBM CICS DL/I UFO COBOL	ANAL/PROGS	MIDDX.	D.V.
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IBM IMS DB/DC ADF COBOL	ANAL/PROGS	ALL AREAS	D.V./N.G.
IBM 8100 DPPX COBOL	ANAL/PROGS	LONDON	D.V.
IBM MVS	SYSTEMS PROGS	ALL AREAS	D.V.
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UNIVAC 1100 DMS TIP DPS COBOL	ANAL/PROGS	ALL AREAS	N.G.
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IBM REQUIREMENTS

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4300 VSAM CICS Progs	City
IMS DBRC Sys Prog	N. London
IMS + IMS Fastpath Sys Designer	City
PL/1 OS/CMS DL/1 Prog	Essex
MVS TSO Sys Prog	Essex
CICS DL/1 Analyst	Sussex
CICS DL/1 COBOL Progs	Sussex
PL/1 IMS Jackson Progs	City
CICS COBOL + PL/1 Assembler Tech Support Prog	South
System 38 Progs (Manuf. & Banking environ.)	Bucks & C. London
COBOL DL/1 Progs	Kuwait
PL/1, TSO/SPF VSAM	City
ADF Analyst/Progs (Min 1 year ADF exp.)	Bucks

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Sys 25 Assembler Progs	Berks
ME29 IDMS DBA/Designer	Caribbean & S. London
TP/Database Project Managers & Systems Designers	Middx
TPMS IDMS Progs	All areas
ME29 IDMS DB Designer	S. London

MICROPROCESSOR/MINICOMPUTER REQUIREMENTS

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"C" & UNIX (all levels)	C. London
VAX COBOL	Herts
VAX BASIC Progs	Surrey
Intel 8088 'C' CP/M (exp. of SNA, X25 SDLC) Network Protocols	West Germany
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Tandem COBOL Progs	Middx
UNIVAC 1100 DPS & DMS Progs	Bucks
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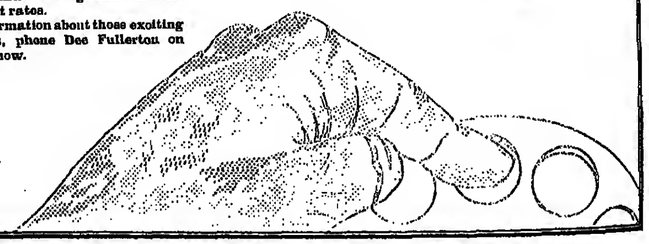

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REWARDS: All positions carry a Company car or car allowance and total earnings will be limited only by ability. On appointment all new employees will receive extensive product training and thereafter on a six monthly basis.

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IBM SHIFT LEADER — **To £9500 LONDON**

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IBM NETWORK CONTROLLER — **£9000 LONDON**

Your communications experience will include 2-3 YEARS' with Case Multiplexors – Message Switching with an OS/VS1 operating background. Knowledge of MVS would be an advantage. An exciting busy company with excellent benefits.

DEC OPERATOR — **£8000 LONDON**

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SYSTEMS & PROGRAMMING

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- **IBM PC, BASIC, LOTUS 1, 2, 3.**

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ICL, VME/B, COBOL	PROGRAMMERS	LONDON
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RPGIII, S/38	PROGRAMMER/ANALYST	LONDON H. COUNTIES
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Customer Support Programmers — **Herts** — **£8,500-£12,000**
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Leading manufacturing company requires someone to install an IBM 4331. In-depth knowledge of OS/VS1, CICS and ROSCOE together with sound telecommunications experience are pre-requisites. This is an outstanding opportunity for the right person. Ref. B284/HP

Analyst/Programmer — **Hants** — **£9,000**
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Contact Haydn Perry at KPG.

Analyst/Programmer — **City** — **to £14,000**
Experienced graduate required to work on the development of relational database systems (INFO) using FORTRAN and BASIC. Knowledge of Petro-chem or process industry an advantage. Ref: B276/MJ

Senior Programmer — **Middlesex** — **to £11,000**
Central support function of major national group require a senior programmer to lead a small team. Knowledge of COBOL, (PLAN), BASIC and RPG II/III would benefit. Ref: B288/MJ

Senior Analyst/Programmer — **West of London** — **£13,000+Car**
An experienced analyst/programmer with proficiency in COBOL and RPG II on IBM mainframes looking for an exciting future with a "hi-tech' manufacturer should look no further than this excellent opportunity. Ref: B286/MJ

Manager – Analysis & Design — **West London** — **£17,000+Car**
To direct and co-ordinate the investigation, design and implementation of new systems, and liaise with senior management to establish systems and procedures, you should have at least five years' experience. Ref: B287/MJ
Contact David Mason Johns at KPG or on 01-747 0989 (evenings and weekends).

Kuwait – M/status Free Furn accom./Flights/BUPA/etc. — **£neg. tax free**
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Kent/Essex, Berkshire/Buckinghamshire Borders
Projects expansion on ICL/COBOL site. One or more of the following skills required: VME/TPS/IDMS/DME/PLAN/FILE/TAB MAXIMOP/GEO II/RAPPORT.

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Two to six years of either CORAL/ADA/PASCAL/FORTRAN. Young company specialising in design and development of electronics and avionics micro based systems.

Prog./Tec. Support Person — **Central & S.E. London** — **£12K neg.**
Good COBOL required. Experience on IBM, UNIVAC or ICL. To write information retrieval packages. Ensure programming controls remain effective. 25% of time preparing/providing training courses.
Contact Diane Febregas at KPG or on 789 8714 (evenings and weekends).

Programmer — **Surrey** — **£10,000 + exc. benefits**
Major brand name manufacturer running IBM 4331 & S/38, requires a programmer to work on mainframe development in financial/corporate areas. Two years' COBOL or PL/1 under CICS or SHADOW. Ref: 8273/CW

Cobol/Assembler Programmers — **City** — **£11,000 + bonuses**
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OPERATIONS

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ICL ME29 — **to £7.8K**
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VAX/PDP 11

BIRMINGHAM

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In addition to a relevant qualification, the company is seeking applicants who have had at least 4 years Data Processing experience with one year in a supervisory role. A systems bias is required plus substantial programming experience. Reporting to the Data Processing Manager, you will liaise with 5 Analyst/Programmers. It is unlikely that candidates under the age of 30 will have the required experience.

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III. Study managers (ref. 9PT/III)

Duties:
to manage study programmes; to analyse the results; to work out European strategies for information technology; to liaise with the relevant bodies.

IV. Technicians (ref. 9PT/IV)

Duties:
to follow-up and analyse technical reports; to assist project leaders in implementing programmes.

The Commission is also seeking:

V. Scientific staff

for the following areas (ref. 9PT/V)
a) The computer language ADA and software technology;
b) Standardization in the data-processing and telecommunications fields;
c) European-wide information systems.

Duties: to manage and monitor programmes.

Qualifications required: 1. Age: between 35 and 50 (approximately) for the posts described under I above. 2. Scientific training supported by a university degree, for the posts described under I and II above. 3. Scientific/economic training supported by a university degree, for the posts described under III above. 4. Technical training (to advanced secondary level) for posts described under IV above. 5. Higher scientific or technical education supported by a university degree, for the posts described under V above. 6. At least five years' experience in a post similar to that applied for. 7. Knowledge of at least two Community languages. 8. Applicants must be nationals of one of the ten Member States.

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The posts are in Brussels. It is expected that successful applicants will take up duty early in 1984.

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Applications must be postmarked no later than 20.12.1983. (6805)

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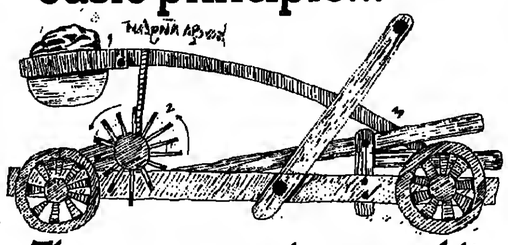

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Then someone improved it
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can you improve this?

In the fast-moving world of intelligent guided weapon systems, our client's high-integrity built-in software has a definite edge on the competition. As a software house, they are setting their own ambitious targets, and are presently initiating a major research and development programme.

They have introduced the latest VAX systems and powerful real-time minicomputers. This dramatically enhanced capability signals important openings for experienced Software Engineers who can make a positive contribution at this early stage.

In all cases you should have a degree-level qualification in a science, engineering or computing field; preferred experience is in real time software development using the host-target concept, with CORAL/MASCOT.

In addition to the following vacancies we are also seeking Consultants for R & D into advanced software engineering techniques for applications in middle to late 80's.

CONSULTANTS c£17,000

With at least 10 years' experience in developing significant real-time software and/or support environments, you will be expected to produce both conceptual and practical design solutions as well as directing a number of software engineering groups. Ref No: G756

PRINCIPAL SOFTWARE ENGINEERS c£14,000

Operating at conceptual design level, you'll need to be a natural leader with in-depth expertise in at least one software specialisation (real-time software design, support environments, simulation, etc.) built up over 8-9 years' professional involvement with both high and low level programming techniques and languages. Ref No: G755

SOFTWARE AND SENIOR SOFTWARE ENGINEERS c£9-13,000

Working to clearly-defined functional requirements with a mixed team of engineers, you will design, develop and prove real-time software at group or individual module level. At least 3 years' appropriate experience is required, using high level structured programming languages. Ref No: G754

Positions offer fully negotiable salaries and a first class relocation package will be available, where appropriate, to candidates for assistance in moving to this pleasant part of the Northern Home Counties.

For further details, interested applicants should write or telephone, quoting appropriate reference.

01-242 9356 **occ computer personnel**

24 hour answering service **Recruitment Consultants, 1st Floor, Craven House, 121 Kingsway, London WC2B 6PA.**

INTELLIGENT TERMINALS LTD.

SOFTWARE AND SUPPORT ENGINEER

Salary scale: £10,000-£11,000

Applications are invited for a new post with a company developing artificial intelligence software for industrial applications. An experienced software engineer is needed to assist in the productising of an existing rule induction package, and in a follow-on technical marketing and support operation targetted on Europe and the Middle East. Applicants should have a sound acquaintance with artificial intelligence methods in general, and knowledge-based programming and rule acquisition in particular. Experience in hardware, in addition to a knowledge of FORTRAN-77 and of Middle-East software markets, is essential. A working command of Arabic is also requisite.

Please apply to: Mrs P. Montgomery, ITL, Room 14, 2 Hope Park Square, Edinburgh EH8 9NW, Scotland.

(6753)

THE LAW SOCIETY

Production Controller

£7,919-£10,353 p.a. (including London Weighting)

The Law Society is responsible for the administration of the Legal Aid and Advice Scheme on behalf of the Government. To assist in carrying out this task it has a SPERRY UNIVAC 90/40 Mainframe installed in Central London and Micro-Processors are being installed in 15 Area Offices throughout England and Wales.

We now require a Production Controller who will be responsible for the day-to-day running of Computer Operations including Data Control. Applicants must have considerable experience at a senior level in computer operation including staff management and at least two years' experience of an OS/3 system environment. Starting salary will be related to age and experience.

Requests for application forms should be addressed to the Personnel Officer, The Law Society, Gresham House, 18 Basinghall Street, London EC2V 5HA. Please quote reference 1/83/CW. Closing date for receipt of completed forms 16th December 1983.

(6729)

THE BRITISH PRINTING INDUSTRIES FEDERATION

ANALYST/PROGRAMMER

to continue the development of a management information package for printers. The package is being written for micro computers and is centred around costing and estimating.

The work will also involve installation of the package in member firms and provision of additional software to meet individual requirements.

The job will be an interesting challenge to a self-motivated person who, preferably, has knowledge of accounting or costing requirements, is skilled in the use of M BASIC and COBOL and is familiar with the CP/M operating system. Preferred age range: 30-40.

and

PROGRAMMER

to work with the analyst/programmer on the development of the package. Experience of M BASIC and the CP/M operating system required.

The job will enable a young programmer to gain experience not only in programming but also in the management information needs of a wide range of companies. Preferred age range: 20-30.

Attractive salaries, according to experience, and a good pension and life assurance scheme are available.

Apply to: Director General, BPIF, 11 Bedford Row, London WC1R 4DX. (6686)

CONTRACTS MIDDLE EAST

IBM

MVS, COBOL, CICS, DL/1	TEAM LEADER
MVS, COBOL, CICS, DL/1	SENIOR PROGRAMMER
MVS, FORTRAN &/or PL/1	SENIOR PROGRAMMERS
MVS	SHIFT LEADER

ICL

ME 29, COBOL	PROGRAMMERS

HP

HP3000, COBOL, IMAGE/ QUERY	ANALYST/PROGRAMMERS

OTHERS

NEW YEAR START for IBM, HP, ICL and MINIS COMMERCIAL APPLICATIONS

(6856)

Contact:
PETER KENNEWELL
DP RECRUITMENT SERVICES LTD.
FREEPOST, LONDON WS 2ST
01-567 5501
(A DUPONT COMPUTING COMPANY)

CONTRACTS

* IBM 8100 DPPX COBOL	* IMMEDIATE
* IBM 8100 DPPX ASSEMBLER	* IMMEDIATE
* IBM DOS/VSE COBOL	* IMMEDIATE
* IBM COBOL ASSEMBLER DOS/VSE & MVS	* IMMEDIATE
* HP 3000 IMAGE VIEW QUERY COBOL	* IMMEDIATE
* ICL+DG — DME RDOS COBOL	* IMMEDIATE
* VAX 11/750 VMS COBOL	* IMMEDIATE
* IBM VM CMS CICS APL COBOL	* JANUARY
* DEC PDP11 RSX 11M COBOL	* IMMEDIATE
* SYSTEM 38 RPG 111	* IMMEDIATE
* ICL VME/B IDMS COBOL	* ON-GOING
* TANDEM COBOL	* DEC/JAN
* PASCAL CPM (COMMERCIAL)	* JANUARY

For your next contract call:

01-903 9648

14th Floor, Station House, Harrow Road, Wembley HA9 6DB.

SYSTEMS SUPPORT SERVICES LTD

WARWICK WOODWARD NEED AN ADDITIONAL RECRUITMENT CONSULTANT

Warwick Woodward is considered to be among the UK's most successful and professional recruitment consultancies. Our client and applicant testimonials speak volumes for our service to the industry.

We now need an additional recruitment consultant to help us continue with our expansion rate. We are not looking for paper shufflers or flashy sales people but would like to find the right person to dovetail with our existing team of experienced consultants.

The likely applicants would be able to demonstrate either a successful background in recruitment or they may be working in DP with a strong desire to move into this highly specialised field.

As background information, you will be interested to learn that Warwick Woodward is part of the flourishing Span Group of Companies whose other member companies are listed as follows:–

Span Computer Contracts
Providing contract support in all areas of DP.

Taurus Technology
Leading edge training and consultancy specialists in UNIX, C and Ada.

Structured Methods
Training, consultancy and project management in the structured methodology approach.

Computergeneral
A business systems house for the first time user.

Span Australia
A subsidiary based in Sydney marketing all the group's services.

Windmill Advertising
An advertising agency which produced this and all the group's advertisements.

The Successful applicant will be well rewarded both financially and in terms of job satisfaction. We expect the sort of performance that comes with maturity (not necessarily in years), sales ability, the gift of ideas and the desire to help others plan their career or their staffing requirements.

If you feel you have a positive contribution to make to Warwick Woodward you should talk to Janet Chilvers our manager on 01-734 7394 during working hours or on 01-241 3341 evenings and weekends.

WARWICK WOODWARD — A SPAN GROUP COMPANY

43-44 GREAT WINDMILL STREET, LONDON W1V 7PA
TELEPHONE: 01-734 7394. 24 HOUR ANSWERPHONE

(6814)

PUBLIC SECTOR APPOINTMENTS

LONDON BOROUGHS OF BRENT & EALING JOINT COMPUTER INSTALLATION BASED AT ACTON TOWN HALL

PROJECT MANAGER

Ref: 055 FD

£12,684-£13,992 p.a. incl.

Applicants for the above post should have at least five years' experience in systems and programming and the ability to lead a team of analysts and programmers looking after existing and new systems for designated areas of each Council's activity. The installation has an IBM 308E running under VM and DOS/VSE, software includes CICS, DL/1, Easytrieve, on-line librarian, APL, MANTIS, etc.

SOFTWARE PROGRAMMER

Ref: 056 FD

£10,542-£11,649 p.a. incl.

To join a team of three software programmers, under the Systems Programmer. Maintaining all software and operating systems. Must be experienced in DOS/VSE with knowledge of Assembler and CICS.

TECHNICAL SUPPORT OFFICER

Ref: 057 FD

£10,542-£11,649 p.a. incl.

This is a new (additional) post and will assist the Technical Support Section in the education of DP Section and Users. User support in personal computing, and general work in the performance/productivity area of the division.

This post would suit an experienced programmer who wants to become involved in more general computing and user contact.

The hardware is 3083E 8 MB, 3350 discs, 3420 tape units. The software includes VM/SP, DOS/VSE, CICS, DL/1, Assembler, COBOL, MANTIS, Easytrieve, APL, ADRS, Fortran.

Closing date for above posts 9.12.83.

Please quote appropriate reference number.

Application forms obtainable from The Personnel Office, Room A.204, Town Hall Annexe, New Broadway, Ealing W5 2BY. Telephone: 01-840 1995 (24 hour service).

(6808)

COMPUTER DEVELOPMENT OFFICER

£10,809 to £11,973 (inclusive)

Ref. CE.17

This new post, within the Personnel and Management Services Division, has been created to advise upon and develop the Council's existing and future requirements for computing and information processing technology.

The current situation is that the Council is part of a consortium but has recently leased a C.M.C. Reality 8420 to assist the Housing Services Department with D.L.O. and Lettings.

The initial duties will be involved in the production of a computing strategy statement as to the Council's future role within the consortium.

Essential Requirement for Applicants

(i) Minimum five years' experience in the computing and information processing field.

(ii) Programming and systems analysis experience.

Desirable Requirements for Applicants

(i) Local Government experience.

(ii) British Computer Society qualification.

Elmbridge is situated in an attractive part of Surrey within easy reach of London. Removal expenses, generous resettlement allowances are payable and temporary accommodation may be available.

For further details and an application form contact Elmbridge Borough Council, Personnel Section, Town Hall, New Zealand Avenue, Walton-on-Thames or telephone Walton-on-Thames 228844 Ext. 2 (answerphone).

Closing date – 19 December 1983.

(6793)

ELMBRIDGE

MANCHESTER POLYTECHNIC

Computing Services Department

The Polytechnic has recently installed a large interactive computer system for teaching purposes, based in a PRIME 850 and 750. This system and administrative systems are supported via a CODEX communications network.

To develop the use and applications of these systems, new key appointments are being made in the Computing Services Department.

1. PRINCIPAL ASSISTANT – PROGRAM DESIGN

Salary Scale PO4 £12408-£13725

Responsible directly to the Head of Department for the programming support function within the Department for the whole Polytechnic. Ref. No. S/84.

2. PRINCIPAL ASSISTANT – OPERATIONS

Salary Scale PO3 £11364-£12738

Responsible directly to the Head of Department for the operations support function within the Department for the whole of the Polytechnic. Ref. No. S/84.

3. SYSTEMS CONTROLLER

Salary Scale PO1 £9945-£11052

Develop and maintain the operating system and communications network to support users' needs. Ref. No. S/86.

Applicants for all posts should be of graduate level, preferably with experience of educational institutions and of PRIME computers.

A Union Membership Agreement is in operation under which new employees are required to join a recognised trade union.

For further details please send a self-addressed envelope quoting the appropriate reference to the Secretary, Manchester Polytechnic, All Saints, Manchester M15 6BH to whom completed letters of application including a full curriculum vitae and the names and addresses of two referees should be submitted by 16 December 1983.

(6785)

UNIVERSITY COLLEGE LONDON Department of Computer Science

Research Assistantships

The department has research assistantship vacancies on grant-funded projects in the following areas:

1. Computer Networks
The successful candidate will be involved in the development of software to monitor the performance of computer networks and will assist in the collection and interpretation of the measurements. A relevant degree is required and experience with UNIX and C would be highly desirable. Some experience of programming in assembly languages would be an asset.

2. Distributed Database
This work consists of a critical survey of existing distributed database architecture followed by the implementation of a prototype system. A relevant degree is required and research experience in the database area will be a distinct advantage.

Salary scale £7,100-£10,250 per annum plus £1,186 per annum London Allowance.

Application, including a full c.v. together with the names of two referees, should be sent no later than 22 December, 1983, to: Departmental Secretary, Department of Computer Science, University College London, Gower Street, London WC1E 6BT.

(6834)

UNIVERSITY OF NOTTINGHAM CRIPPS COMPUTING CENTRE

APPLICATIONS PROGRAMMER

Applications are invited for the above post within the Computing Centre.

The Centre operates in ICL 2977 and 2976 under VME/O, together with a VAX 11/780 and attached array processor. Wide and local area networks exist, providing links throughout the campus, as well as to the national computing facilities at Manchester, the Midlands Universities Network and PSS.

The successful candidate will be working in the general areas of applications software development, user training and software advisory services. Candidates should have good programming experience in a number of programming languages (preferably from within the group of Fortran, Pascal and Algol 68). A good knowledge of engineering software development would be an advantage.

Applicants should normally have a good honours degree or equivalent experience.

Starting salary will be in the range £8,310-£8,080 (IS) or £8,080-£8,975 (IA) per annum, according to level of experience.

Application forms and further particulars, returnable not later than 13 December 1983, may be obtained from the Staff Appointments Officer, University of Nottingham, University Park, Nottingham NG7 2RD. Please quote Ref. No. 905.

(6782)

BOX NUMBERS

Box number replies should be addressed to:

Box Number ....

c/o Computer Weekly
Quadrant House
The Quadrant
Sutton, Surrey SM2 5AS

CHIEF EXECUTIVES DEPARTMENT

Senior Programmer

£11,079-£12,186 pa (incl. LWA)

Camden is one of the largest inner London authorities and is developing a wide range of applications based on a super dual 2988 using the latest software tools including IDMS and TPMS.

Working in Project Teams, Senior Programmers will be involved in the development of a variety of applications and will also be expected to perform some supervisory duties. Opportunities for training and working in a systems role will be provided.

A minimum of four years in Data Processing is required of which three years must have been spent in programming. Knowledge of COBOL, 2900 and SCL is essential and experience of Structured Programming, TP, IDMS or systems work would be an advantage.

Application form from and to be returned to: Departmental Staffing Officer, Room 207, Town Hall, Euston Road, NW1 2RU or telephone 01-837 9988 (Ansafone) quoting ref no 1C/418/CW.

Closing date: 15 December 1983.

(6837)

CAMDEN

equal opportunity employer

Applicants are considered on the basis of their suitability for the post regardless of sex, racial origin, marital status, disablement or age.

All posts are open for job-sharing.

MEIRIONNYDD DISTRICT COUNCIL

ANALYST/PROGRAMMER

(for ICL ME29 installation)

SALARY SCALE S/6 – £7,191-£8,712 per annum

The successful applicant will be expected to design new systems and be experienced in the use of RANGE COBOL, TME-TP and TME-RAPID software.

Most of Meirionnydd District is within the Snowdonia National Park and this post offers not only a rewarding appointment but also the opportunity to live in one of Britain's most attractive areas.

Assistance with removal and other expenses in approved circumstances.

Application forms from the Chief Executive, Meirionnydd District Council, Cae Penarlag, Dolgellau, Gwynedd, LL40 2YB.

Closing date: 16 December, 1983 (1st post)

(6790)

SYSTEMS PROGRAMMERS

MVS or IMS

LOLA provides a central computer service for London Local Authorities based on corporate on-line IMS databases. We currently run a 24 megabyte 3081D on MVS/SP1.3.2 supporting an extensive network of over 350 IMS terminals and a growing population of TSO/APL/ISPF users.

There are now two vacancies within technical support which offer the opportunity to develop your current skills and broaden your knowledge in a large IBM installation.

£7,788-£11,136

Salary within the above range will be according to experience.

For appointment at the senior level you should have a good working knowledge of Assembler and at least three years' relevant experience in either MVS or IMS (DB/DC). Ideally you will be familiar with SMP and with some of the following: TSO/ISPF, VSAM, VTAM, LIBRARIAN, PL/1.

Applications will also be considered from competent Applications Programmers who can demonstrate their technical potential in an IBM environment and now wish to enter systems programming.

For a discussion of either of these opportunities phone Dave Goodall during office hours on extension 277. Further details and an application form may be obtained from:

Mrs Beryl Dorrington
LOLA
Tower Point North
Sydney Road
Enfield, Middx EN2 6UE
Tel: 01-366 6611. Ext. 276

LOLA

(6843)

WESSEX REGIONAL HEALTH AUTHORITY

Project Manager

Salary Scale 14 – £9,404-£11,434

An experienced person is required to manage a team of systems designers/programmers responsible for all financial applications within the Region including the maintenance of standard payroll and accounting systems and the development and implementation of an on-line creditor payments system.

Wessex Regional Health Authority comprises ten DMU's covering Hampshire, Dorset, Wiltshire and the Isle of Wight and has ICL 2903/ME29 minicomputers and ICL DRS/7500 systems linking to an ICL 2980 mainframe running under DME George 3 in the Regional Computer Centre established in Winchester.

Applicants, male or female, should have proven experience in management, system design and programming work and should be able to communicate with staff and users at all levels. A knowledge of ICL computers, COBOL, G3, TME, SDM and NCC Standards would be an advantage.

Please write or telephone for an application form and full details to: Personnel Officer, Wessex Regional Health Authority, Highcroft, Romsey Road, Winchester, Hants SO22 5DH. Tel. No.: Winchester (0962) 63511. Ext. 471.

Closing date: 16th December, 1983.

UNIVERSITY COLLEGE CARDIFF COMPUTING CENTRE

Vacancies exist for the following posts in the computing centre. The centre houses a Honeywell Multics system with twin processors, 12 Mb of memory and a full supporting configuration. More than 100 terminals provide the principal means of access to Multics and the system is connected to the Regional ICL 2980 at Bath, to the University of London Centre and to PSS.

A User Services Manager (Ref 2713) is required. The person appointed, who will preferably have proven experience in the technical and managerial roles of University Computing, will have responsibility for the User Interface and be involved in the planning and implementation of the facilities required to meet the computing needs.

The salary will be on the OR Scale II (£11,160-£14,125) or Scale III (£13,515-£16,825). Duties to commence as soon as possible after 1st February 1984.

A Systems Programmer (Ref 2714) is also required to assist in the maintenance and development of the Multics system. Experience of PL/1 would be an advantage. Salary will be on the OR Scale 1B (£8,310-£9,875) or 1A (£7,190-£11,615). Duties to commence as soon as possible.

Applications (2 copies) together with the names and addresses of two referees should be forwarded to the Vice Principal (administration) and Registrar, University College, P.O. Box 78, Cardiff CF1 1XL from whom further particulars are available. (Please quote appropriate reference). Closing date 15th December 1983.

PUBLIC SECTOR APPOINTMENTS

There are few projects in computing that can match the variety provided by Birmingham City Council. We have the equipment to meet the challenge with an IBM 3033 and over 400 terminals.

Birmingham City Council, the largest city authority in England, serves a population of over 1 million with a diverse commercial and industrial community. The City Treasurer's Department has responsibility for over £700m expenditure p.a. on capital and revenue account and playing a vital role in the Department's activities is the purpose built Computer Centre, which is located close to the City centre. The Centre operates an IBM 3033 with 13,000 megabytes of backing store to support over 400 terminals with a further 200 planned.

An IBM 3081, with an increase in backing store to give a total of 30,000 megabytes will be installed next year to cater for the development of new applications.

We now require experienced computer professionals to work on a wide variety of applications, including GL80 (new financial information system) Opac (Payroll), Income, Social Services' Clients Record System, Education Careers Service, Personnel, and Rates.

SYSTEMS ANALYSTS

(within range £9,060-£12,408) (Ref: CD7)

To develop applications (financial and non financial) and work with the minimum of supervision.

It is unlikely that the persons appointed will have less than three years' systems experience.

PROGRAMMERS

(within range £5,640-£9,660) (Ref: CD10)

Applicants should have experience of designing, writing and testing COBOL programs/transactions in an OS/MVS environment, preferably using IMS.

Good terms of employment include flexible working hours based on 36½ hour week, assistance with relocation in approved circumstances. For application form candidates should apply to:

City Treasurer (Ref: PSO), Council House, Birmingham B3 3AB.
Telephone: 021-235 2993.

Canvassing will disqualify. *An equal opportunity employer.*

(6798)

BIRMINGHAM CITY COUNCIL

Analyst/Programmer

Salary on a scale rising to £10,539

Would you like to work as part of a small and enthusiastic team engaged on an extensive project for the administration and control of a direct labour construction organisation in a Highways Department?

You would be using VAX 11/780 and 750 computers together with a fourth generation software development system ADMINS II. Training in the use of the facilities will be given. You should have three years' experience in commercial applications programming using high level languages and hold an appropriate qualification.

Removal, resettlement and lodging allowances are payable in approved cases.

Application forms and further details from County Surveyor, County Hall, Chichester, or telephone (0243) 777973 quoting reference SQ.102.

Closing date Monday, 19th December, 1983.

West Sussex COUNTY COUNCIL

(6827)

UNIVERSITY OF STRATHCLYDE

Computer Centre PRINCIPAL COMPUTING OFFICER

Applications are invited from graduates for a post of Principal Computer Officer. Candidates for this senior post should have experience of several of the major activities of the Centre, viz maintenance and development of mainframe operating systems and software, the acquisition and use of applications programs, local and wide area communications, computer graphics, the use of microcomputers and microprocessors, and the provision of a range of user services including education and advisory/library services.

Salary will be on Grade III Scale for Other-Related Staff (£13,515-£16,825 p.a.) – USS benefit.

Further details and application forms (Ref: OR15/83) may be obtained from the Academic Staff Office, McCance Building, 16 Richmond Street, Glasgow G1 1XQ.

Closing date for applications: 6 January, 1984.

(6816)

LONDON BOROUGH OF HAVERING Housing Department

HOUSING PROGRAMMER

Grade APTC Scale 3/4

Salary £6,237-£7,602 inclusive

This is a key post in a progressive Housing Department with a considerable commitment to the use of High Technology in the Housing Service.

The Department has a network of computer equipment based on a central DEC PDP 11/44 programmed in Basic + and peripheral Olivetti TC 800s programmed in Assembler. Most aspects of Housing Management for the Council's 17,500 dwellings are computerised and the successful candidate will be expected to deal with the maintenance of existing software and new software developments in housing and associated fields.

Ideally the successful candidate will have some experience of Basic + running on a DEC Series II mini under RSTS/E, together with an appreciation of the DEC and Olivetti hardware and on-line real time communications. Candidates should be able to work under pressure and have had some experience in business systems, database systems and/or property management systems. Suitable training will be given if necessary.

Application forms and job description available from the Housing Manager, Mercury House, Romford RM1 3DT. Tel: Romford 58666, ext. 428.

Closing date: December 8, 1983.

(6714)

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE (UNIVERSITY OF LONDON)

Keppel Street, London, WC1E 7HT

STATISTICAL AND PROGRAMMING ASSISTANT

A statistical and programming assistant is required in the Department of Epidemiology for a period of up to 18 months to work as part of a team concerned with two projects: the evaluation of wellbeing in multi-centre European trials of a new anti-hypertensive drug, and determination of the factors influencing survival in normotensive and hypertensive subjects in different parts of the United Kingdom. The work will involve the use of standard statistical packages and the post is suitable for graduates with little previous experience as well as those with more experience who will be able to make an individual contribution to the research work.

Salary in the range £7,498 to £9,716 depending on experience and qualifications. Apply in writing to the Assistant Secretary giving full career details and the names and addresses of two referees. Closing date 19 December, 1983.

(6801)

OXFORD POLYTECHNIC

COMPUTER CENTRE

Ref: 08/18

Applications are invited for the post of Computer Operator. The successful applicant will become a member of a team of operators responsible for the Centre's computers.

Equipment installed includes five Prime processors, running under PRIMOS and PRIMENET supporting 180+ terminals, together with a network of 11 Apollo Domain mini computers, and a variety of micro computer systems. Suitably experienced applicants should have a good educational background, and will probably have an appropriate post A qualification. A two-shift working system is in operation and the salary will be within the grade:

Salary Scale 3 £5,840-£6138 + 14% shift allowance

The closing date for this post is December 19, 1983.

For further details and application forms please apply to: Miss M. Egan, Oxford Polytechnic, Headington, OXFORD OX3 0BP, Oxford (0865) 64777.

(6815)

Bristol Polytechnic Department of Computer Studies and Mathematics

Lecturer II/Senior Lecturer in Information Systems

Ref No L/152

Applications are invited from graduates, preferably with a relevant higher degree, for a lectureship in Information Systems. The successful candidate will contribute to research and curriculum development and to the teaching of Information Systems, both theory and practice, on internal and serviced courses. Candidates should have an understanding of behaviour in organisations, in addition to computing, as a basis for the construction of suitable models of user systems.

Information Systems is a major subject within the Department's degree and sub degree teaching programme, in serviced courses (particularly in the Faculty of Accounting, Business and Management) and features in a major Bristol Polytechnic Open Tech contract involving Plessey Marine.

SALARY SCALE: LII £7,218-£10,893 (bar) – £11,898 per annum
SL £10,683-£12,582 (bar) – £13,443 per annum

The appointment will be made on the appropriate scale according to relevant previous service/experience. (Progression from the LII scale to the SL scale is in accordance with the provisions of the Burnham Further Education Report.)

For further details and an application form, to be returned by 16 December, 1983, please contact the Personnel Office, Bristol Polytechnic, Coldharbour Lane, Frenchay, Bristol, or ring Bristol 656261, ext 218 or 217

Please quote reference number L/152 in all communications

(6864)

Inner London Education Authority BRIXTON COLLEGE

56 Brixton Hill

Business Studies Department

PART-TIME TEACHERS OF COMPUTING

Required to teach Computer appreciation to young people on daytime courses up to a maximum of 12 hours per week. Hourly rate of pay £8.57 (Inclusive of Inner London Allowance).

Please telephone on 01-737 1166 for further details

ILEA is an equal opportunities employer

(6865)

TEESSIDE POLYTECHNIC COMPUTER CENTRE

PROJECT MANAGER

Post Reference No. P.CU.08

Grade: PO1(c), Salary: £10,839-£11,703 per annum.

To lead a team of programmer/analysts in the design and production of software for the Administrative work of the Polytechnic. This software is being written using a powerful and sophisticated management information system on a Prime 750 computer.

The post offers an ideal opportunity for a systems analyst or experienced programmer to further their career by moving into a management position in one of the leading Computer Centres in the educational field.

Application forms and further particulars from: The Personnel Section, Teesside Polytechnic, Borough Road, Middlesbrough, Cleveland TS1 3BA. Telephone: Middlesbrough (0642) 218121, Extension 4114.

Closing date for applications: 9th December, 1983.

(6684)

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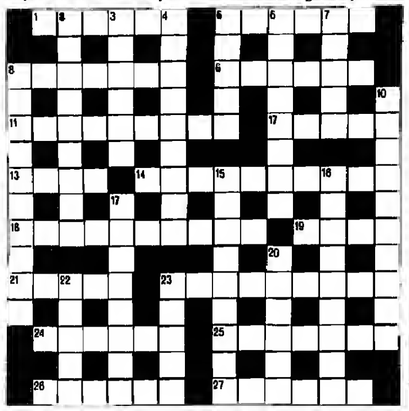
CROSSWORD

Prize Crossword No 47

Compiled by Alec Robins

A prize of £10 will be awarded for the first correct entry opened. The second and third solutions opened will receive £5 each. Entries to Crossword Competition, Computer Weekly, Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS, by first post Friday, December 9. Please use a ballpoint to complete the crossword, and include a telephone number at which you can be reached during the daytime.



Name ..... (Miss, Mrs, Ms, Mr)

Address .....

.....

Telephone .....

I accept the rules and conditions of the Computer Weekly Crossword Competition.

Signed ..... Date .....

ACROSS

1 Grooves one left in tins (6)
5 A nuisance, the French pounding instrument (6)
8,9 Maud's brothers fashioned holiday wear (7,6)
11 A vegetarian, simple perhaps, I rove all over the place (9)
12 Principle that makes men leave a block of apartments (5)
13 Exam a quarter's taken in vain – not elected (4)
14 Oily stuff crafty flies elude (6,4)
18 Famous Duke, western Duke (10)
19 Behaved like angry cat in petty quarrel (4)
21 Leaps disastrously; making a slip (5)
23 Member caught in taxi strike quickly sent message (9)
24, 25 Lessen the number of child listeners you've to make cry (6,2,5)
26 See me, out of bed, going about the ship in a muddle (4-2)
27 Country girl follows the vessel (6)

DOWN

2 Going by plane is excellent with right musical composer (3,6)
3 A rabbit rampant is an old Egyptian deity (6)
4 Period of time in Greece's capital, something to add relish (9)
5 Quiet fools almost out of date (3)
6 Spry lot I ragged, in a good spirit (8)
7 Pretend to allow to board the bus? (3,2)
8 To live on own we shall set with propriety (6,4)
10 A great newspaper, always (2,3,5)
15 Sertify, having to scratch endlessly, yet in charge (9)
16 Advantage gained by superior workman (5,4)
17 If upset about hidden microphones, they burn things (8)
20 Attend the final nearly defeated (6)
22 A bit sanctimonious over eastern church (5)
23 Men in official head-dress that's paltry (5)

RULES AND CONDITIONS

1. Each competitor may submit no more than one entry.
2. The competition is open to all readers of Computer Weekly with the exception of the staff of Business Press International Ltd, any printers employed by them or the near relatives of any of the above.
3. The solution of each puzzle will normally be published in the issue three weeks after the puzzle has been published.
4. Winners will receive their prizes during the month following the competition.
5. The decision of the editor on the interpretation of the rules and conditions and on all matters shall be final. No correspondence will be entered into.

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These people are usually the best-informed in the organisation. Apart from which, it always sounds a lot stronger to say: "Your managing director's secretary told me you are the right man to speak to." How is the recipient to know whether or not his boss was involved in that recommendation? It is an implied reference well worth the making.

That's tip number one. Now I want to concentrate on the most important part: the discipline of scheduling appointments in order to maximise the use of selling time.

The first rule is to condition yourself to short lunch-breaks. The second is always to fix the first appointment of the day so that it starts before normal working hours; say, 8.00am or at the latest 8.30am. The benefits of discussing business before the buyer's telephone starts ringing and other members of staff start interrupting are obvious and considerable.

With this kind of start to the day, the salesman can be on his second call before his main competitor has finished delivering his kids to school.

The third rule is to arrange the second appointment after normal business hours. Again the absence of telephones and people at this time of day makes selling so much easier and more effective as well as minimising intrusion into the selling day.

The fourth rule is to arrange the third appointment of the day with a buyer who normally takes a late lunch, you know, the 1pm/1.30pm guys.

The fifth rule is to fix the fourth appointment of the day with one of the buyers who normally takes an early lunch.

What is the effect of all this? Well, given a situation where a normal selling-call typically takes 45 minutes and the average travelling time between calls is 15 minutes, it means there is still time for three more calls in the morning and two in the afternoon.

So who wants to be the first person to tell me that's impossible? The fact is, in most cases it is purely a matter of insufficient commitment on the part of many sales people.

Yet the total effect of all this when addressed to the selling year is much more than greater dedication to duty and broader application. No-one will argue with the simple thesis that more calls means more prospects means more business.

So, let's not be ambitious and go for those extra five calls that can be achieved by pushing the normal schedule of calls towards the morning, evening and lunchtime; let's just aim for one more call per day.

That's five extra calls in a week. That's got to represent a lot of extra business. By my reckoning, it's worth a 25% improvement in sales achievement. That can't be bad.

Having said that, I am mindful of the fact that time has to be spent on the telephone fixing appointments, but even this can be minimised. Unless you are truly in the one-off one-call-close business, a lot of time can be saved by making a habit of fixing up the next appointment as a concluding action of every selling call.

It is also a much stronger way of making appointments because it is always easier to get commitment on a face-to-face basis than it is over the telephone.

Being a salesman new to the area can often be advantageous, particularly with buyers who are dissatisfied with either competitive suppliers or the salesman's predecessor. It gives them a good chance to have a moan and get some sympathy.

So, if you are genuinely new to the district or a prospective buyer, be sure to say so. Apart from which, most buyers are interested in meeting new people, particularly if they belong to that rare breed, the effective salesman.

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SALES BIT

Quality of Management – 75

Selling calls must be worthwhile

LAST week I discussed the various stages and implications of making appointments by telephone. I particularly stressed the need for good planning and preparation, and above all the importance of remembering that the objective is to sell the appointment, not the product.

This week I want to complete this two-part discussion by concentrating on some of the necessary disciplines, as well as offering some tips and ideas on ways in which a high level of success can be achieved.

Let me start by stating the obvious. The primary objective of making appointments by telephone is to make the maximum number of worthwhile selling calls within any given working day.

By "worthwhile", I mean situations where there is real business potential. A meeting of sufficient duration has been agreed in order to allow effective evaluation of the requirement and identification of the best available proposition, and the buyer has agreed either to buy the product or take some sort of action.

Qualification is one of the most essential facets of selling. Last week, I said that wherever possible, qualification should occur before actually telephoning for an appointment. Of course, this is not possible in every case and so information has to be obtained within the call that is primarily intended for fixing the appointment itself.

This is usually the case when following up enquiries. (For those who exhibited at Compec, this may well be your situation at the moment!)

For many salespeople, the instinctive openers are usually ones which do little to progress the selling situation.

"What would you like to know?" "Can I help you?" "What did you think of the girls who were giving out the leaflets on the stand?"

It is essential that the opening statement immediately sets the conversation into qualification mode. "What prompted you to visit our stand?" "Which product interested you the most?" "What kind of problem do you think we might be able to solve for you?"

The salesman must start out with an open-ended question that identifies the need.

However, in most cases the prospect will have been qualified before the appointment-making call is actually made. In passing, a good tip when qualifying the prospect is to make contact with the private secretary of either the managing director or the company chairman for information at the top management level, such as who decides what.

These people are usually the best-informed in the organisation. Apart from which, it always sounds a lot stronger to say: "Your managing director's secretary told me you are the right man to speak to." How is the recipient to know whether or not his boss was involved in that recommendation? It is an implied reference well worth the making.

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